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THE UNIVERSITY OF ALBERTA

DIRECTIVE AND RESPONSIVE BEHAVIOR PATTERNS IN FAMILIES WITH AN INTELLECTUALLY DELAYED CHILD

A THESIS

BY CARL EIGIL JENSEN

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH
IN PARTIAL FULFULMENT OF THE REQUIREMENTS FOR THE DEGREE
OF DOCTOR OF PHILOSOPHY IN SPECIAL EDUCATION

DEPARTMENT OF EDUCATIONAL PSYCHOLOGY

EDMONTON, ALBERTA

SPRING, 1993

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Please contact me for questions. Good luck with your study.

Sincerely,

Marjorie White

Marjorie A. White, RN, PhD, FAAN
Professor
University of Florida
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Date: February 8th, 1993

I dedicate this thesis to Heather
as an expression of my gratitude for her
patience and support.

ABSTRACT

This study explores directive and contingently responsive behaviors in sixteen families with an intellectually delayed child. The nearest-in-age non-delayed sibling served as "control". Each family was videotaped while engaged in a standardized cooperative activity. The behaviors of the four family members were coded in eight dyads as either Responsive, Directive, Responsive-Directive, Non-Directive Initiation or No Behavior. Consistent with the past literature, the results showed that parents were more directive toward their delayed than toward their non-delayed children and that mothers were more directive than the fathers. Furthermore, the parents were more frequently directive than responsive toward their children, regardless of the children's diagnosis. Contrary to predictions from the past literature, the delayed children were more responsive than their non-delayed siblings and the two groups of children did not differ in directiveness (behavioral initiation). A post-hoc analysis indicated that the relatively high interactive level of the delayed children could best be explained in terms of family systems theory. Thus, the behavior of the children, regardless of diagnosis, gender and birth order, was facilitated variously by a sibling or one or both parents. Family income was related to responsiveness but not to directiveness. The parents' level of education was not related to either directiveness or responsiveness, possibly because the educational levels of the participating parents did not vary sufficiently. The fathers and mothers did not differ from each other on a scale measuring various aspects of family dynamics (The Family Dynamics Measure), and its subscales were not significantly related to responsiveness and directiveness.

I acknowledge the support and masterful counsel I have received from my supervisory committee chairman, Dr. Michael Rodda. I also acknowledge the valuable support received from the other two committee members, Dr. Linda MacDonald and Dr. Peter Calder. In addition, I wish to acknowledge the support I have received from my many close friends.

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CHAPTER I

INTRODUCTION

This dissertation will examine directive and contingently responsive behavior patterns in families with an intellectually delayed child. These behavior patterns are important in relation to the development of intellectually delayed children because they have been associated with intellectual (Mahoney, Finger & Powell, 1985), linguistic (Fisher, 1988) and social (Parpal & Maccoby, 1985) progress in non-delayed children. However, additional research is needed to clarify how parents and their intellectually delayed children behave in terms of these two behavior patterns.

The study of the relationship between parents and their children has a history that parallels quite closely the study of the etiology of development. While a number of different views of both development and parent-child relationships have coexisted, one view or another has tended at different times

to be more prevalent than others.

During the first third of the twentieth century, the quality of the relationship between parents and their children was for the most part considered to be of minor importance. This followed from the view that development in general and intellectual development in particular was assumed to be primarily genetically inherited. Two of the major proponents of this view were Stanley G. Hall and Arnold Gesell (Dixon and Lerner, 1988). At the same time, support for the Watsonian empiricism, which saw learning as an explanation for human development, was strong and growing (Cairns, 1983). B. F. Skinner (1938; 1957) brought the operant learning theory and its emphasis on the analysis of behavior, response, stimulus and consequence to prominence during the middle of the century. Bijou and Baer (1961) subsequently studied child development from a learning point of view. Since behavioral learning theorists assume that all behavior is under stimulus control, parenting practices are seen by learning theorists as crucial for the development of children. Thus, training programs for parents of both normal children and special needs children flourished (for example Patterson & Gullian, 1968; Shearer & Shearer, 1976). The mothers' role in shaping the child's experiences was especially emphasized (Young, 1990).

Also influential during the mid-century were the

psycholanalytic theories of development, notably those of Anna Freud (1963), Klein (1958) and Erikson (1959). While psychoanalysis is an interactional theory, it is rooted in biology. The interaction occurs between innate functions and stage-related experiences. The successful transition from one psychological stage to the next is accomplished through environmentally facilitating experiences. These experiences serve to help the children resolve psychodynamic conflicts that in turn enable them to proceed to the next stage. The interaction, however, is biologically driven and quality parenting practices were still not promoted strongly. More emphasis was placed on what parents could do wrong (such as frustrating the infant or child's instinctive needs) than on what they could do right.

One of the lasting contributions of the psychoanalytic approach to child development was the discovery of the devastating effect of "maternal" deprivation on the child's functioning. The critical element was not the presence of the child's natural mother but the care of some one person with whom the child could establish a relationship (Spitz, 1945).

Bowlby's (1969) attachment theory emphasized the importance of the mother's role in the early mother-infant relationship more than the traditional psychoanalytic theories. Attachment generally refers to an infant's feeling

of security with and closeness to the mother. This feeling develops through mother's availability to her infant and through her responsiveness to the infant's interactional cues. A recent and different psychoanalytic model has been proposed by Brazelton and Cramer (1990). According to that model, all parent-child interactions are guided by projections from a parent's childhood. These projections can be either positive and appropriate or negative and inappropriate. If parents carry negative images from their childhood and they project them onto the child, these projections would be inappropriate and would interfere with their ability to be responsive. The Brazelton approach appears to be as environmentally driven as Bowlby's (1969) attachment theory. The parents, by becoming aware of the images they are projecting onto the child, and by controlling these images, can learn to respond to the child's actual needs. This model places a great deal of importance on parent-child interaction generally and responsiveness in particular.

During the 1960s and 1970s, interactionistic views of intelligence gained acceptance through writers such as Piaget (1952) and Hunt (1961). While Piaget ascribed a strong role to the innate biological determinants of cognitive functions, he argued that cognitive structures are constructed through the child's experiences (Piaget, 1970). Thus, through the

adaptive processes of accommodation and assimilation the child structures internal representations (schemas) of the outer world on the basis of which the child in turn responds to the external world. The biologically determined stages serve to limit the type of schema the child is able to construct. Most interactionist positions imply that parenting plays an important but not exclusive role in a child's development (Young, 1990). However, since developmental-interactional theories are associated with stage theory, certain aspects of parenting are considered more important than others. Thus, Piagetian proponents would aim parenting education at skills specific to the transition period from one stage to another (such as conservation of liquid) in order to help the child safely through the transition periods. In general, however, it is considered more important to respond to the child's initiations than to teach the child. If parents have to teach, it is important for them to teach skills that the child is developmentally ready to learn.

Bell (1968) and Sameroff and Chandler (1975) expanded the interactional view to the bidirectional/transactional view. Bell (1968) argued in a literature review that parents' behavioral characteristics are being shaped by the behavior of their children as much as the children's behavioral characteristics are being shaped by the behavior

of their parents. In support of that view, Maccoby and Parpal (1983) suggested that maternal responsiveness is confounded by the child's responsiveness and that both must be taken into account when maternal responsiveness is measured.

The term "interactional" is often used to refer to the reciprocal relationship between parents and their children. It will be used interchangeably with the term "transactional" in this dissertation. The bidirectional view shifted parenting emphasis from mother's role to the quality of the relationship between mother and child (Young, 1990). In fact, the bidirectional view implies that parents must have insight into how children affect the parents' behavior before they can manage their children's behavior.

Bell's (1968) bidirectional view gave impetus to much new research. Among other objectives, this research attempted to relate quality of parenting to developmental outcome. Sameroff and Chandler (1975) proposed that developmental outcomes for infants at reproductive risk are a function of a transactional process that link a child's physiological constitution and social environment. A series of studies concerning typical children using the HOME scale (Bradley, Caldwell & Elardo, 1977) indicated that the composite HOME assessment score as well as the play and parental involvement subscales of the HOME scale are highly

predictive of later intellectual and academic competence (Elardo, Bradley & Caldwell, 1975; Bradley & Caldwell, 1976a, 1976b, 1977, 1980, 1981, 1984). IQ at age 36 months has been predicted from parent-child interaction (Bakeman & Brown, 1980; Bee, Barnard, Eyes, Gray, Hammond, Spietz, Snyder & Clark, 1982; Ramey, Farran & Campbell, 1979). Mahoney et al. (1985), employing intellectually delayed children and their mothers, found that responsive maternal behavior contributed substantially to the Bayley mental development scores. Other parent-child interaction work involving developmentally delayed children has been successful at predicting language development (see for example Fischer, 1988). This work adds strength to the assumption that the quality of the parent-child relationship may either enhance or detract from the child's intellectual development and language development. The quality of parent-child interaction has also been related to children's social development (see for example Parpal & Maccoby, 1985). Socio-economic status (SES) has been correlated with IQ (Beckwith, 1976) as has degree of maternal education (Kochanek, Kabakoff & Lipsitt, 1990). However, SES is not a unitary concept (Deutsch, 1973) and may only be a correlated variable.

In behavioral terms, one may ask what parent behaviors make the difference between a poor and a successful developmental outcome. Two of the more frequently discussed

behavioral variables concerning parent-child interaction are contingent responsiveness and directiveness. These may be among the missing links between various well established environmental correlates (such as SES, mother's education, and mother's IQ) of intelligence. Contingent responsiveness, as defined for the purpose of the present thesis, refers to behaviors which are contingent upon, and therefore follow, the occurrence of the behavior of someone else but which are not directive in nature. Contingent responsiveness has commonly been conceptualized in terms of its sequential relation to its antecedent. However, an expanded conceptualization will be used in this dissertation, namely that person B's response not only is contingent upon the occurrence of person A's behavior but also that it is thematically congruent with person A's behavior. Thematic congruence may be conceptualized as being on the same topic (Mahoney, Fors & Wood, 1990; Tannock, 1988a) in a communicative sense, or concerning the same activity.

Contingent responsiveness is related to, but not necessarily equivalent to, what has been referred to merely as responsiveness. For example, Clarke-Stewart (1973) referred to responsiveness as the frequency of parental responding to the child's distress, social expressions, demands and physical needs. This type of responsiveness is not necessarily contingent upon the child's behavior but is

often a response based on a parentally perceived need in the child. A related example is one of the subscales of the HOME Scale called "Emotional and Verbal Responsivity of Mother". That subscale is rated on eleven criteria. Only three of these criteria, namely contingent vocalization, praise and commenting, are expressly contingent. Thus, responsiveness that is contingent upon someone else's behavior may be distinguished from conceptualizations that are primarily concerned with the adult's perceptions of the child's needs. In this dissertation the terms responsiveness and contingent responsiveness will be used synonymously.

Contingent responsiveness may also be viewed as positive reinforcement of the child's behavioral initiations. It may also be interpreted as a parental satisfaction with the child which in turn may enhance the child's self-esteem.

Directiveness has been associated with controlling, negative, interfering, critical and restrictive behaviors (Mahoney, Powell & Finger, 1986; Tannock, 1988a). However, it also has more positive connotations such as guidance, instruction and suggesting. However, directiveness always implies an attempt to change another person's behavior.

Directiveness and responsiveness have been found to load highly on different factors (Crawley & Spiker, 1983; Mahoney et al., 1986). Also, directiveness has been associated with lower intelligence than responsiveness

(Mahoney et al., 1985). Thus, parents who are highly directive but not very responsive would be controlling and intrusive and their delayed child's rate of learning would suffer. If, on the other hand, they were directive as well as responsive, their behavior might have a positive effect on the child. For example, Marfo and Kysela (1988) concluded from their data that "being directive does not necessarily take away from the quality of interaction. While issuing a significantly larger number of instructions, mothers of mentally handicapped children were as responsive to their children's behavioral initiations and responses as mothers of nonhandicapped children" (p. 87). In other words, directiveness may be operating independently of responsiveness and would not necessarily detract from the children's functioning.

The possibility also exists that directiveness is curvilinear and forms an inverted U in relation to competence. Roberts (1986) provided data in support of this hypothesis. The dilemma of directiveness may therefore be that, on the one hand, too much directiveness may interfere with the children's intellectual, linguistic and social development (Mahoney & Finger, 1985; Tannock, 1988). On the other hand, insufficient directiveness may result in a lack of direction for the delayed children who have been shown to initiate activities and interactions less frequently than

their non-delayed peers (Buckhalt, Rutherford, & Goldberg, 1978; Eheart, 1982; Levy-Shiff, 1986; Mahoney & Robenault, 1986; Stoneman, Brody & Abbott, 1983).

If parental directiveness, at an asymptotic point, has a maximum positive influence on a child's development, an important question for this dissertation emerges: How directive are parents generally toward their intellectually delayed children? Are they too directive or not sufficiently directive? One way to answer this question would be to compare how directive parents are toward their delayed and toward their non-delayed children.

The research pertaining to delayed children has typically involved non-delayed comparison children from different families. This is methodologically problematic because differences in parent behavior may be attributable to either the children's diagnosis or a difference in parental characteristics. The difference in parental characteristics may arise because parents of delayed and non-delayed children have quite different parenting experiences. Employing the delayed child's sibling as comparison averts this problem.

Most of the past research on directive and responsive parenting patterns has focused on the mother-child dyad. Much less information is available on how fathers together with mothers interact with their intellectually delayed and

non-delayed children (Stoneman et al., 1983). Studies that have involved fathers and non-delayed children include Clarke-Stewart (1978) and Belsky (1979); studies that have involved fathers and delayed children include Levy-Shiff (1986), Maurer and Sherrod (1987) and Stoneman et al. (1983).

A substantial body of literature is available regarding the siblings of handicapped children (for example, Begun, 1989; Breslau, Weltzman & Messenger, 1981; Brody & Stoneman, 1986; Lobato, Barbour, Hall & Miller, 1987; McHale & Gamble, 1989; Simeonsson & Bailey, 1986; Stoneman, Brody, Davis & Crapps, 1987; Vadasy, Fewell, Meyer & Schell, 1984). However, that research has more frequently consisted of interview and questionnaire data than direct behavioral observations and has rarely included measures of directiveness and contingent responsiveness. Furthermore, the sibling research has frequently focused on the effects of the intellectually delayed or physically disabled sibling on the normal sibling (for example, Breslau et al., 1981; Lobato et al., 1987; McHale & Gamble, 1989).

The inclusion of a sibling in parent-child interaction research is important in the context of family systems theory. For example, Minuchin (1974) has theorized that families function like dynamic systems in which the behavior of one person or one subsystem affects other parts of the system. For example, the effectiveness of a mother's

behavior toward her intellectually delayed child may be strengthened or weakened depending on the behavior of the father and/or the siblings. In support of the systems model, Dunst and Trivette (1988) have reported data to demonstrate that "factors beyond the individual characteristics of family members--most notably intrafamily and informal support, family well-being, and child-related personal well-being--accounted for independent and statistically significant amounts of variance in caregiver interactional behavior" (p. 30).

In conclusion, the study of parent-child interaction parallels ontogenetic views of child development. These views vary from those based on genetic inheritance to those that see the environment as primary. Although the genetically based theories of intellectual development do not completely disregard environmental influences, they place little importance on parental care beyond the basic care of feeding, hygiene, safety and sleep. Behavioral learning theory, at the other extreme, requires parents and other caregivers to teach and shape the skills that children must learn to reach adult levels of competence. In other words, the behavioral learning theory requires parents to be mostly directive. Only skills that are generalized from the trained skills need not be taught. Between these two extremes lie the cognitive and ethological views that, because of their

interactional nature, place parent-child interaction in a prominent position. However, these views require parents to do little teaching in a directive sense. Rather, the children themselves construct the mental structures if they are exposed to an appropriate environment. Parents' responsiveness to the children's own initiations is of primary importance. Responsiveness provides the child with self-esteem and permission to explore and learn through interaction with the environment. Directiveness, in contrast, is seen as intrusive and destructive unless it occurs at developmentally sensitive times.

In view of the foregoing information, the objective of the present study is to observe the interactions between young intellectually delayed children, their parents and their nearest-in-age sibling. Observation of these interactions within the family unit might lead to unique conclusions and would have greater ecological validity than merely observing mother-child dyads. The inclusion of the delayed child's closest-in-age non-delayed sibling as control will prevent the methodological difficulty incurred when the comparison children are from families without a delayed child.

The past research concerning the patterns of responsive and directive behaviors relating to intellectually delayed children will be reviewed in the following chapter.

CHAPTER II

LITERATURE REVIEW

As indicated in the foregoing chapter, interactional behavior patterns in families with an intellectually delayed child will be studied in this dissertation in terms of contingent responsiveness and directiveness. Past research concerning these behavior patterns will be reviewed in this chapter. The relevant research concerning triads, siblings and family systems will also be reviewed. The studies reviewed will be described in detail under the first heading, Parental Responsiveness, so that less description will be needed in subsequent references to the same studies.

The definitions of responsiveness and directiveness have varied between studies. Therefore, the variables that are conceptually similar to those of the present study will be considered. The operational definitions of directiveness and responsiveness are presented in the Coding Manual, Appendix VII. The definition of directiveness in this study is broad

and will accommodate most previous conceptions. The concept of responsiveness, on the other hand, is more complex. It is distinguished from the concept of sensitivity which involves perceiving or anticipating a need in another person. Contingent responsiveness, in contrast, must be contingent on the other person's behavior and it must be thematically congruent with the behavior of that person.

PARENTAL BEHAVIOR PATTERNS

Parental Responsiveness

Terdal, Jackson & Garner (1976) examined how parents and children respond to each other in an unstructured and a structured situation. These researchers used the response-class matrix (Mash, Terdal & Anderson, 1973) for which two observers simultaneously record the parent-child/ child-parent interactions in 16 second intervals. One observer records the parent's behavioral antecedent and the child's behavioral consequent in the appropriate cell on one matrix while the second observer records the child's behavioral antecedent and the parent's behavioral consequent in the appropriate cell on another matrix. The response-class matrix makes possible the examination of interactive behaviors in terms of antecedent-consequent relationships. The following seven classes of maternal behavior were used in the matrix: commands, command-

questions, questions, praise, negative behaviors, interaction and no response. The child behavior classes consisted of: compliance, independent play, competing behavior, negative behavior, interaction (verbal and non-verbal), and no response. Forty-two intellectually delayed and 40 non-delayed children participated in the study. The delayed and non-delayed children were matched on three mental age (MA) levels of approximately 2, 4½ and 7 years. They were also matched at two chronological age levels of approximately 4½ and 7 years. However, this matching resulted in the delayed children varying simultaneously on MA, chronological age and IQ. IQ was left uncontrolled and opened the results to alternative explanations.

The results from the free-play sessions indicated that interactive responses of mothers to the delayed and non-delayed children's antecedents were approximately equal across the three MA levels. In the structured activity condition, the mothers of the intellectually delayed children were generally more tolerant with their children's non-compliance and less positive toward compliance compared to mothers of the intellectually average children. The statistical tests used were not reported.

Hanzlik and Stevenson (1986) also used the Mash et al. (1973) response-class matrix. These investigators employed 40 mother-infant dyads in four groups, 10 dyads per group.

The children in one group had cerebral palsy and in a second the children were mentally retarded. The remaining two groups consisted of normal children who formed chronological age matches to a mean of 21.8 months and MA matches to a mean of 12.4 months. Each mother-child dyad was videotaped for 15 minutes in the child's home while playing with a standard set of toys. The Bayley mental scale was administered following the play session. In each coding segment, the first action by the mother and the first action by the child were used as the antecedent while the subsequent action by each person was used as the consequent. The behavior categories used for the mothers were: Command, command-question, question, praise, negative, verbal interaction, nonverbal interaction, and physical contact. The child behavior categories were: Independent play, compliance, competing behavior, question, negative, verbal interaction, nonverbal interaction, and physical contact. In addition, the following dependent variables were examined separately: a) the proportion of coding intervals during which each infant and maternal behavior occurred; b) positive responsiveness. Positive responsiveness was defined as non-negative behavior that was contingent on the antecedent behaviors.

The statistical analysis consisted of a series of one-way analyses of variance with repeated measures. The

results did not show any significant difference in responsiveness of mothers between the intellectually delayed and non-delayed MA matched groups. However, the mothers of the intellectually delayed children produced proportionally more commands than the mothers of the non-delayed MA matched comparison children. The delayed children were more compliant than the MA matched controls, and they showed more competing behaviors. The two groups were equal in overall levels of activity.

Tannock (1988a) worked within a communicative framework in which a communicative unit was called a turn. Tannock (1988a) distinguished between a) a communicative response which shares the partner's focus, activity or topic, and b) a communicative switch which deviates from the partner's topic either by introducing a new topic or by continuing the person's own prior topic. Thus, a turn could be either directive (by soliciting a certain response from the partner) or responsive by merely acknowledging the partner's response. Twenty-two children and their mothers served as subjects. Eleven children with Down's syndrome were individually matched with 11 non-delayed children on receptive and expressive communication and developmental ages ranging from 10 to 22 months. The mothers of the two groups of children did not differ in frequency of response turns. Nor did they differ when responsiveness was calculated as the conditional

probability of the child taking a turn.

Mahoney et al. (1990) also examined the frequencies of mothers' use of turns. Mahoney et al. (1990) defined a turn as "any behavioral unit produced by one person during the course of interaction" (p. 401). A turn was subdivided into mands, responses, response-mands and unlinked turns. Mands are behavioral initiations to which the other person is obliged to respond. A response-mand consists of a response to another person together with a request for a response from the other person. A response is a turn which is contingent upon a turn by the other person and an unlinked turn is a noninteractive turn. Mands were further subdivided into the following four types: Action requests (e.g., "Push the truck"), attention requests (e.g., "Watch this"), test questions (e.g., "Say car"), and information requests (e.g., "Show me what you want"). 18 Down syndrome children and 18 nondelayed children, matched at an MA of 18 months, were video and audio taped in play with their mother in the children's homes for 20 minutes with a standard set of toys. For the purpose of the data analysis, the intellectually delayed children were divided evenly into two subgroups based on their relative engagement in the interaction. One group was equal in interactive turns to the non-delayed (turn balanced) and one was significantly lower in interactive turns (turn imbalanced). The results did not show any

significant differences in rate of maternal responsiveness as a function of child group differences.

The four foregoing studies all found mothers of delayed and non-delayed children to be equally responsive. They all involved mother-child dyads and the children were matched on MA. Other systematic methodological commonalities between the studies were not discovered. The studies differed with regard to the diagnosis of the children (Down syndrome versus mixed), the setting (home versus laboratory), the condition (free play versus structured activity), the observational method (direct observation versus video recording), the age of the children (MAs between 1 and 6 years) and the number of children per diagnostic group (between 10 and 40).

Buckhalt et al. (1978) who had matched their Down syndrome and normal subjects on chronological age rather than on MA as in the foregoing studies also found the mothers to be equivalent in responsiveness. However, Buckhalt et al. (1978) did not clearly measure <u>contingent</u> responsiveness. These investigators operationalized responsiveness as looking, touching and vocalizing to the child.

It appears from the foregoing that when the children's behaviors differ, the mothers are not responding so much to the children's behavior as they are to the children's MA. In support of this conclusion, Brooks-Gunn and Lewis (1984) obtained correlations indicating that mothers' responsiveness

is a function of MA rather than chronological age.

The following studies found mothers of delayed children to be less responsive than mothers of non-delayed children. Brooks-Gunn and Lewis (1982), in a longitudinal design, studied mother-child pairs involving 110 exceptional infants between the ages of two and 36 months and 156 non-delayed infants between the ages of two and 27 months in the laboratory setting. The purpose was to compare the early interactions between mothers and delayed and normal infants. The chronological ages were selected so that the two groups of children could be matched on chronological age as well as on age equivalents of the Bayley mental scale. The infants were divided into three age equivalent groups, 2-7 months, 8-16 months and 17-27 months. 58 percent of the exceptional infants had Down syndrome, 25 percent were physically impaired and 17 percent had been diagnosed as developmentally delayed. The infant behavior categories included smiles, frets/cries and vocalizations. These were coded as either initiations, responses or ongoing and/or non-interactive behaviors. The behavior categories for the mothers were smiles and vocalizations. The mothers of the two diagnostic groups of infants were equivalent in their responses to their infants' smiles at the age equivalent of 2-7 months. Then, as the smiling of the non-delayed infants increased until the age of 27 months, their mothers increased their frequency of

responses to smiling drastically. No increase in maternal responses to smiling was exhibited by the mothers of the exceptional infants, likely because the delayed infants decreased their interactive smiling during the same period. The mothers of both exceptional and normal infants decreased their responsiveness to fretting and crying (when the two groups of infants were matched on age equivalents) from approximately 30 to 10 percent of total fretting/crying behaviors between two and seven months. From then on the mothers of both groups remained low in responsiveness to crying and fretting even though the exceptional group did not reduce their level of negative behaviors until after age 24 months. The mothers of the delayed group were more responsive to their infants' vocalizations at three months. However, from then until the children were 24 months in age equivalents, the mothers of the non-delayed children increased their responses, unlike the mothers of the delayed children who did not increase their responses.

Cunningham, Reuler and Blackwell (1981) compared intellectually delayed and non-delayed children who were matched on MA at two levels, namely at a mean of 23-24 months and at a mean of 39-40 months. The observations took place in the laboratory setting under free play and structured task conditions. The Mash et al.'s (1973) response matrix was used with the original behavioral categories altered in order

to accommodate both the free play and the structured task conditions. Several of the behavioral categories could be cautiously classified as contingent responses, namely mother responds, mother attends to compliance and mother observes. The analysis indicated that the mothers of the intellectually delayed children with the higher MA were lower on the first of these categories than the mothers of the low MA delayed and both normal groups. The mothers of the intellectually delayed children at both MA levels were less responsive than the mothers of the non-delayed children with respect to the second and third categories. The results from the structured task showed that the mothers in the higher MA group were equally responsive, whereas the mother of younger MA delayed children praised less and attended less than mothers of non-delayed children.

These two latter studies then suggest that the mothers may, in part, be responding to the child's level of maturity and functioning rather than to the child's chronological age. However, Brooks-Gunn and Lewis (1982) also showed that other explanations are needed to account for the maternal response patterns, such as type of child behavior, the value to the mother of the behavior in question, and the mother's perception of the child's competence.

Jones (1979) examined the communicative interaction in free play mother-child sessions involving six 13-24 months

old Down syndrome children and six MA matched normal children. Six sessions during a three month period were video recorded in the homes during free play with a standard set of toys. Jones (1980) was interested in examining the flow of interaction between mother and child in order to discover which activity elicited a particular response. That investigator defined interaction as "any act that invited response or was itself a response" (Jones, 1980, p. 207-208). The videotape recordings were transcribed in one-second blocks under the headings of eye-direction of child and mother, vocal activity of child and mother and non-vocal activity of child and mother. In a second analysis, the sequences of interaction were coded. The mothers of intellectually delayed children were reported to be significantly less responsive than mothers of non-delayed children. However, no information about statistical tests used or significance levels were reported. The study may best be seen as a qualitative microanalytic study supported by some quantitative data. As such, it disclosed some interesting interactional phenomena. For example, mothers of Down syndrome children produced more acknowledgements in response to their children's frequent but less communicative verbalizations than was the case for the normal children, but the mothers of the Down syndrome children used expansion of their children's vocalizations less frequently.

The three foregoing studies all involved mother-child dyads and their methodology varied with regard to diagnosis (Down syndrome versus mixed), setting (home versus laboratory), observational method (direct observation, video or audio recording), the age of the children (MAs between 2 and 40 months), and the number of children per diagnostic group (between 6 and more than 100). The results did not vary between free play and structured activity conditions.

Levy-Shiff (1986), in one of the rare father-mother-child triad studies, compared the interaction of fathers and mothers with their intellectually delayed children, the children's behavior toward their parents, and the children's impact on the spousal interaction. Twenty families with intellectually delayed children of mixed diagnoses were contrasted with 20 families with nondelayed children. The children were matched on gender, birth order and developmental age (19 to 23 months). The families were matched on socioeconomic status. Two observers who were unaware of the purpose of the study coded the parent and child behaviors in the homes during the afternoon and early evening. This time period was chosen in order to ensure the presence of both parents. Any sibling or siblings in the family could be present but their behavior was not recorded. A pre-established list of parent behaviors and child behaviors were coded. The behavior categories used in the

study were generally not directly applicable to the present study. However, two of the parent behaviors could be seen as primarily contingently responsive (verbal responding and attending). Included in the definition of attention was looking at the child's activity, listening to the child, watching and observing without speaking and interacting with the child. The mothers of the delayed children were less verbally responsive than mothers of the non-delayed children while the fathers generally were less verbally responsive than the mothers, regardless of the child status. The delayed children received significantly less attention from their parents than the non-delayed and this difference was more pronounced for the fathers than for the mothers.

In contrast to the foregoing studies, Stoneman et al. (1983) found parents of intellectually delayed children (Down syndrome) to be more responsive than the parents of the control children. This is another of the few existing studies employing father-mother-child triads. The investigators had matched their subjects on chronological age. The delayed children, to whom the parents were more responsive, were therefore of lower MAs than the non-delayed children.

Summary - No clear agreement appears to exist in the literature as to the degree of responsiveness of parents toward their delayed and non-delayed children. Some studies

have found that parents of intellectually delayed children and parents of non-delayed comparison children generally are equal in contingent responsiveness (Hanzlik & Stevenson, 1986; Mahoney et al., 1990; Tannock, 1988a; Tannock, 1988b; Terdal et al., 1976. Other studies have found parents of delayed children to be less responsive than parents of non-delayed children (Brooks-Gunn & Lewis, 1982; Cunningham et al., 1981; Jones, 1980; Levy-Shiff, 1986). One study (Stoneman et al., 1983) concluded that parents of delayed children are more responsive than parents of non-delayed control children.

Parental directiveness

Terdal et al. (1976), using the response class matrix and employing children matched on MAs from two to eight years, found the mothers of the intellectually delayed children to be significantly more directive than the mothers of the control children. Buckhalt et al. (1978) found that mothers of 9 to 18 month old Down syndrome children were significantly more verbal than mothers of normal CA matched children during a direct teaching task. Cunningham et al. (1981) used the following behavioral categories that could be considered directive: Mother initiates action, mother controls/interrupts play, and mother commands/questions. Mothers of delayed children obtained significantly higher

frequencies in all three categories during free play than mothers of their MA matched non-delayed control children across two different MA levels (means of 28 and 40 months). These results were less drastic for a structured task condition. Thus, commands were still issued at a higher rate by the mothers of the delayed children at both MA levels but command-questions were only issued at a higher rate by these mothers at the higher MA level. Eheart (1982) matched their delayed and non-delayed child subjects on play behavior. The CAs of the non-delayed children were 24 to 31 months. The mothers of the delayed children issued more than three times as many directives and initiated nearly twice as many interactions as the mothers of the normal controls.

Command and command/question were the most directive categories in the Hanzlik and Stevenson (1986) study. The mothers of the delayed children, whose mean MA was 12.4 months, issued twice as many commands as the mothers of the non-delayed children. Kasari, Sigman, Mundy and Yirmiya (1988) referred to directive behaviors as behavior regulation behaviors. Using 18 delayed children who were matched on MA with 18 normal children, Kasari et al. (1988) found that the mothers of the delayed children used significantly more prompts than the mothers of the non-delayed children. These investigators, however, found no difference in the frequency with which activities were initiated. Kasari et al.'s (1988)

data was based on a series of five short free play and structured activities over a 12-minute period.

Tannock (1988a, 1988b) studied directiveness in terms of turn-taking control, response control and topic control. The subjects were 11 Down syndrome and 11 normal children individually matched on MAs from 10 to 27 months and language ages from eight to 28 months. The mothers of the Down syndrome children exhibited greater turn-taking and topic control than mothers of the normal children. No difference was found for response control when the behaviors involved were calculated as a proportion of the mother's total turns. Mahoney et al.'s (1990) directive behaviors were referred to as mands and included action requests, attention requests, test questions and information requests. Any other mands were coded in a miscellaneous category. The Down syndrome subjects were divided into those whose rate of turn taking was equivalent to that of the MA matched normal children and those whose turn-taking rate was lower. The mothers of the Down syndrome children produced significantly more mands than the mothers of their normal MA peers. However, the mothers of the turn imbalanced Down syndrome children produced twice as many mands as the turn balanced group of Down syndrome children.

One exception to the above results was that of Maurer and Sherrod (1987). These investigators compared directives

given to Down syndrome and normal children by both their mothers and fathers. These investigators compared the two groups of parents on new commands and repeated commands and on new and repeated suggestions (i.e., implicit commands) over a period of two years. The CA of the children was 12 months at the start of the study and 36 months at the time of completion. The CA matching showed the parents of the Down syndrome children to issue more directives than parents of the normal children. However, when the two groups of children were matched on MA this difference was only evident at the youngest ages; over time the difference disappeared. No differences were found between the directive behavior of the fathers and the mothers.

As another exception, Levy-Shiff (1986), who observed mothers, fathers and children simultaneously, found that the mothers of the intellectually delayed engaged in teaching less often and initiated fewer activities than the mothers of the non-delayed. However, the fathers of the delayed children were more restricting than fathers on the non-delayed while the mothers of the two groups did not differ on this variable.

Summary - While directiveness has been operationalized in a variety of ways, the results have been remarkably consistent. Thus, Buckhalt et al. (1978), Cunningham et al. (1981), Eheart (1982), Hanzlik and Stevenson (1986), Jones

(1979), Kasari, Sigman, Mundy and Yirmiya (1988), Mahoney et al. (1990), Tannock (1988a, 1988b) and Terdal et al. (1976) have all found mothers of intellectually delayed children to be more directive than mothers of the non-delayed control children. Buckhalt et al. (1978) matched the children on CA, Eheart (1982) matched them on play behavior while the remaining studies matched the children on MA. Maurer and Sherrod (1987) only found a difference at the youngest (12 months) age. In contrast, Levy-Shiff (1986), studying father, mother and child simultaneously, found mothers of the delayed children to be engaged in teaching less often while the fathers of the delayed children were more restricting.

CHILD BEHAVIOR PATTERNS

Child Responsiveness

A high proportion of the studies reviewed concluded that young intellectually delayed children respond less frequently than nonhandicapped children to their mothers' interactive behaviors across a variety of conditions and methodologies (Buckhalt et al., 1978; Cunningham et al., 1981; Eheart, 1982; Glenn & Cunningham, 1984; Hanzlik & Stevenson, 1986; Jones, 1979; Jones, 1980; Maurer & Sherrod, 1987; Stoneman et al., 1983; Tannock, 1988a, 1988b; Terdal et al., 1976). However, a few exceptions do exist. Thus, Terdal et al. (1976) found that the difference in responsiveness to both

the mothers' interactions and mothers' questions was more pronounced at the two than at four and six-year MA levels where some of the measures were nonsignificant. However, as the rise in MA was accompanied by a rise in IQ in Terdal et al.'s (1976) subjects, the rise in IQ may have created a rival hypothesis. In other words, the difference in the responsiveness of the children may have been due to either a rise in MA or IQ. In contrast, Brooks-Gunn and Lewis (1982) found three-months old developmentally delayed children to exhibit more interactive smiling than normal infants in response to their mothers. However, this relationship was reversed by 12 months. By 24 months both groups had decreased the interactive smiling that was a response to maternal behavior, though the normal children were still smiling more than the delayed children. Brooks-Gunn and Lewis (1982) further found that at three months of age the two groups of infants were equal in vocalizations that were a response to maternal behavior. However, from that age on the normal infants showed a much more dramatic increase than the delayed infants.

The quality of the children's responses has also been examined. Jones (1980) found that normal children, in addition to being more responsive, were also more communicative than the delayed children. The delayed children were more likely than the non-delayed to participate

in ritualistic interchanges, such as putting toys in an offered container or building and knocking down a block tower.

Summary - Most of the studies reviewed have concluded that young, intellectually delayed children respond less frequently than nonhandicapped children to their mothers' interactive behaviors. However, there are some indications that degree of child responsiveness among the two diagnostic groups may interact with age (Brooks-Gunn & Lewis, 1982; Terdal et al., 1976), the responsiveness of the delayed children being greater than the responsiveness of the non-delayed children during infancy. Jones (1980) found the quality of the delayed children's responses to be lower than that of their non-delayed peers.

Child Directiveness

Directiveness has traditionally been treated as a parental behavior category. Relatively few studies have therefore recorded the intellectually delayed children's directive behavior and no direct definition has been located. Child directiveness implies that the child is attempting to change the parents' behavior. The child would be making demands on, or in some way be in conflict with the parent. From this perspective, Stoneman et al. (1983) found that their four to seven year old Down syndrome subjects, matched

on chronological age, managed their parents' behavior less often than the did normal children. However, directiveness could also merely refer to the child's behavioral initiations or, the similar concept, behavioral turns. Using this latter definition, Mahoney et al. (1990) did not find that Down syndrome and normal children when matched on a mean MA of 17.6 months differed in the rate of producing behavioral turns. The chronological ages of the subjects in both groups ranged from 15 to 30 months. The lack of difference may have been due to the young age of the children. Tannock (1988) similarly did not find any clear differences between delayed and non-delayed children in turn-taking control, response control or topic control. Tannock's (1988) child subjects were young (chronological ages of 10 to 57 months) and, as in the case of Mahoney et al. (1990), the lack of differentiation between the two groups of children may have been due to the young age of the children. Thus, the difference in children's directiveness may be more pronounced at older ages.

Summary - No firm conclusions can be drawn from the reviewed literature regarding the directiveness of delayed children relative to that of non-delayed children. One reason may be that researchers have not often seen directiveness as a child characteristic. Another is that no firm definition of directiveness appears to exist. One study

(Stoneman et al., 1983) found the delayed to be less directive than the non-delayed whereas others have found no difference (Tannock, 1988a, 1988b; Mahoney et al., 1990). Further, the relative degree of directiveness in the two groups of children may interact with chronological age (Tannock, 1988a, 1988b; Mahoney et al., 1990).

SIBLINGS

The mutual relationship between children and their parents in families with an intellectually delayed child has received some attention in the research literature. However, this research has commonly involved retrospective interviews, questionnaires and rating scales. It has much less frequently involved direct behavioral observations and has rarely, if ever, involved the constructs of contingent responsiveness and directiveness. One generalization which can be extracted from the literature is that older female siblings usually play a greater role with regard to caregiving than the older male siblings resulting in greater stress for the female sibling (Stoneman et al., 1987). Another generalization is that younger male siblings tend to suffer from a significant degree of social and emotional neglect (Grossman, 1972). From these generalizations one might predict that the older female sibling, because of her frequent caretaking role, may tend to be more directive than

the other siblings. The younger male sibling, in contrast, may be more demanding and negative because of lack of attention. Competition for parental attention, recognition and love has been noted as a source of conflict between siblings in general (Ross and Milgram, 1982). The severity of the child's handicap is not itself an important factor in determining the siblings' responses to the intellectually delayed child (Grossman, 1972). The results from one study (Lobato et al., 1987) indicated that few differences exist between siblings of handicapped and normally developing children.

TRIADS

With a few exceptions only (Stoneman et al., 1983; Levy-Shiff, 1986), the parent-child interaction research involving intellectually delayed children reviewed for this thesis has been based on mother-child dyads. However, some evidence from the literature on normal development has indicated that the presence of the father may alter the mother's interactive behavior. Clark-Stewart (1978) showed that mothers talked less and were less contingently responsive in the presence of the father than in his absence. The frequency of behaviors of the parents, and behaviors of the children directed at the parents, are significantly reduced when both parents are present (Belsky, 1979; Stoneman

et al., 1983). In general, however, the similarities between the fathers and the mothers far outweigh the differences between them (Belsky, 1979). Only a few studies involving intellectually delayed children (Levy-Shiff, 1986; Maurer and Sherrod, 1987; Stoneman et al., 1983) have included the father.

FAMILY SYSTEMS

Family systems theory is a useful conceptual framework when family groupings of three or more people are being studied. Family systems theory, as proposed for example by Bowen (1966), Haley (1967), Minuchin (1974) and Boscolo, Cecchin, Hoffman and Penn (1987), holds that the members of a family are bound in a web of dynamic relationships. A significant change in the behavior of any one of the members of the system will effect a change in the behavior of the other members. Minuchin (1974), in his structural family systems approach, divides the family system into subsystems, such as the parental subsystem and the child (or sibling) subsystem. These subsystems are defined according to the rules that govern the behavior of the members within each subsystem. For example, parents must command some degree of authority over their children, whereas the children must exhibit a certain degree of compliance. The relationships between the subsystems, as well as between individual family

members, are discussed in terms of boundaries. When the boundaries are diffuse and unclear, the members of one subsystem partly assume the role reserved for the members of another subsystem. Such a relationship is referred to as being enmeshed. On the other hand, when the boundaries are referred to as rigid, the members of two subsystems have little effect on each other and the relationship is referred to as disengaged. Families at both extremes of the continuum from enmeshment to disengagement have been described as dysfunctional (Beavers, 1977). The healthy families at the center of the continuum are characterized as having a balance of independence and interdependence (Beavers, 1977; Barnhill, 1979).

Social functioning within the family system arises as a result of an interaction between the individual family members and the family members' adapting to each other's behavior. The systemic behavior patterns form an equilibrium that only changes when a significant shift occurs in either an individual family member or in one of the subsystems. Directiveness may be seen as contributing to an enmeshed relationship, unless the directive behavior is thematically congruent with the behavior of the person being directed. If the directiveness is experienced as controlling and intrusive by the person being directed, it may contribute to a dysfunctional relationship. Responsiveness, on the other

hand, preserves the healthy boundaries between individuals without producing disengagement.

Walker and Crocker (1988) have reviewed various methods for assessing family functioning. One recent and relatively quick attempt to measure family functioning from the perspective of family systems theory has been made by Lasky, Buckwalter, Whall, Lederman, Speer, McLane, King and White (1985) who developed the Family Dynamics Measure (FDM). Brackbill, White, Wilson and Kitch (1990) administered the FDM to mothers in their third trimester of pregnancy and the Carey and McDevitt's Revised Infant Temperament Questionnaire was administered when the child was eight months of age. The results accurately predicted the temperamental predisposition of infants in 77 percent of 90 cases.

Family systems theory has only recently been discussed in the literature on intellectually delayed children (see for example Berger & Foster, 1986; Waterman, 1982). Berger and Foster (1986) claimed that "(t)he single most important implication of family therapy theory for intervening with families with a mentally retarded child is the recognition that it is impossible to separate interventions aimed at a child from interventions specifically targeted at families" (p. 254-255).

SUMMARY AND CONCLUSIONS

The research comparing parental responsiveness toward delayed and non-delayed children is equivocal. Four of the studies reviewed (Hanzlik & Stevenson, 1986; Mahoney et al., 1990; Tannock, 1988b; Terdal et al., 1976) indicate that parents of intellectually delayed children generally are as responsive toward their children as are parents of nonhandicapped children. However, methodological weaknesses were pointed to in one of these studies (Terdal et al., 1976). Four studies (Brooks-Gunn & Lewis, 1982; Cunningham et al., 1981; Jones, 1980; Levy-Shiff, 1986), on the other hand, found that the parents of delayed children are less responsive than the parents of MA matched controls. One study concluded that parents of delayed children are more responsive than parents of non-delayed control children (Stoneman et al., 1983).

Most of the studies reviewed had matched the intellectually delayed and the non-delayed groups on MA. Thus, degree of parental responsiveness may in part be a function of the children's MA. However, the equivocalness of the studies reviewed indicates that other factors are influencing the results of the studies, for example, chronological age (Brooks-Gunn & Lewis, 1982; Cunningham et al., 1981), type of maternal response (Cunningham et al., 1981) and type of child activity (Brooks-Gunn & Lewis,

1982). Family systems theory has predicted that a change in one part of the family will have an effect in other parts of the system. All the studies reviewed concerning responsiveness, with one exception, were based on mother-child dyads. The exception (Stoneman et al., 1983) included mother-father-child triads with a unique result. These investigators found parents of delayed children to be more responsive than parents of non-delayed children. It is therefore likely that the family members will behave differently depending on who is present during the data collection. Clarke-Stewart (1978) and Belsky (1979) demonstrated that parents behave differently toward their children in triads than in dyads. No empirical information is known to the author with regard to the parental responsiveness when at least one sibling of the intellectually delayed child is included in the behavioral system. Although several hypotheses are supported by previous research, the most plausible hypothesis at this time is that parents of delayed children are less responsive than parents of non-delayed children.

Much greater clarity exists with regard to parental directiveness and child responsiveness. The research results have quite consistently confirmed the hypothesis that parents of intellectually delayed children are more directive than the parents of the non-delayed comparison children. The

existing evidence has further suggested that parental directiveness is inversely proportional to the child's age. This study therefore hypothesizes that the parents will be more directive toward their delayed than toward their non-delayed children.

Intellectually delayed children have generally been found to be less responsive to their parents than non-delayed children. This study therefore hypothesizes that the delayed children will be less responsive than their non-delayed siblings toward their parents.

Child directiveness has only rarely been recorded and the available data are at variance with each other. However, the possibility exists that child directiveness increases with chronological age. This possibility assumes that children also become increasingly assertive with the rise in MA. Since delayed children are functioning at younger mental ages than non-delayed children of the same chronological age, delayed children may be less directive toward their parents than non-delayed children. Accordingly, this study hypothesizes that the delayed children will be less directive toward their parents than their non-delayed siblings.

SUMMARY OF MAJOR HYPOTHESES

1. The frequency of consequents for fathers will be lower than the frequency of consequents for mothers.

2. Parents will be less contingently responsive toward their intellectually delayed children than toward their closest-in-age non-delayed children.
3. Parents will be more directive toward their intellectually delayed children than toward their closest-in-age non-delayed children.
4. Intellectually delayed children will be less contingently responsive than their closest-in-age non-delayed siblings toward their parents.
5. Intellectually delayed children will be less directive than their closest-in-age non-delayed siblings toward their parents.

* * *

The foregoing literature review and discussion have generated five hypotheses concerning the responsive and directive interaction between family members, one of whom is a young intellectually delayed child. The method for testing these hypotheses will be detailed in the following chapter.

CHAPTER III

METHODOLOGY

OVERVIEW

This study employed a semi-naturalistic behavior observation method. Sixteen families, each with two parents, an intellectually delayed child and the closest-in-age non-delayed sibling, participated in the study. The four family members worked on a structured group activity during a period of approximately 20 minutes. This activity was videotaped and from the tapes the behaviors of each family were coded as eight dyads in 16 second coding segments. The behaviors were coded into five mutually exclusive and all inclusive behavior categories. Within each coding segment, the antecedent behavior was first coded and then the consequent of the antecedent was coded. The antecedent was the first scoreable behavior occurring after the start of each coding segment and the consequent was the subsequent behavior by the dyadic partner. The behavior coding

categories developed for this study focused on contingently responsive and directive behavior patterns. Only the consequents were subjected to analysis. The analysis of the obtained consequents allowed the investigator to examine a) the consequent behaviors of the father and mother in relation to the antecedent behaviors of the delayed child and the non-delayed sibling, and b) the consequent behaviors of the delayed child and the non-delayed sibling in relation to the antecedent behaviors of the father and the mother.

SUBJECTS

The members of sixteen families served as subjects. Twenty-two families were contacted. Four of these declined the invitation to participate. In one of the remaining two cases, the father was unavailable and the last case was a single-parent family. Thus, 72 percent of the families contacted agreed to participate.

A family was defined as a mother, a father, an intellectually delayed child age four to seven years and the closest-in-age non-delayed sibling. Other siblings in the family were not present during the videotaping session. Table 1 displays the characteristics that indicate the nature and degree of intellectual delay of each of the intellectually delayed children. As indicated in Table 1, the delayed children were of mixed diagnoses. Subjects of

mixed diagnoses have served as subjects in a number of studies (Brooks-Gunn & Lewis, 1982; Cunningham et al., 1981;

Table 1

Characteristics Indicating the Nature of the Intellectual Delays

FAMILY	CHARACTERISTICS
1	Down syndrome; IQ 67 (S-B, III)[1]; on HEIP[2]
2	Unknown etiology; IQ 64 (S-B, III); on HEIP
3	Mild C.P.; mild M.R. (clinical judgment); on HEIP
4	Unknown etiology; IQ 51 (S-B, III)
5	Down syndrome; IQ 59 (S-B, III)
6	Unknown etiology; IQ 54 (S-B, III)
7	IQ 53 (S-B, III); in integrated preschool
8	IQ 52 (WISC-R)[3]; in integrated preschool
9	IQ 55 (S-B, III); in integrated preschool
10	Untestable; in integrated preschool
11	Autistic symptoms; untestable; VABC ABC[4] 69; on HEIP
12	IQ 71 (S-B, III); VABS ABC 65
13	Unknown etiology; IQ 58 (S-B, III)
14	Down syndrome; in integrated school program
15	Down syndrome; in integrated school program
16	Autistic symptoms; untestable; on HEIP

1. Stanford-Binet Intelligence Scale (Form L-M) (Terman & Merrill, 1973)
2. Home-based early intervention program
3. Wechsler Intelligence Scale for Children, Revised (Wechsler, 1974)
4. Vineland Adaptive Behavior Scales, Adaptive Behavior Composite (Sparrow, Balla & Chicchetti, 1984)

Eheart, 1982; Hanzlik et al., 1986; Levy-Shiff, 1986; Terdal et al., 1976). Although the strategy of using subjects of mixed diagnoses could mask diagnosis-specific

characteristics, such diagnosis-specific findings do not appear to have been reported in studies relevant to the present context. On the contrary, the results of the present study are generalizable to a broader population than it would have been had it not been for the mixed diagnoses strategy. The delayed children were not tested specifically for this study. The test scores reported in Table 1 were obtained from the children's school or clinical files. The children did not have any sensory or motor deficits sufficiently severe to impair their ability to take part in the study.

The ages of the intellectually delayed children are shown in Table 2. They ranged from 3.7 to 7.9 years with a mean age of 5.5 years. If younger delayed children had been selected, the closest-in-age younger sibling might have been too young to participate in the structured activity planned for the study. That activity required some verbal communication and visual symbolic representation which is poorly established in many children below the age of two years. Also, delayed children above the age of seven years might have an older closest-in-age sibling who is an adolescent. Such siblings would have reached a degree of social independence to which their parents might have responded differently than they would to the social

Table 2

Age and Gender of Delayed and Non-Delayed Children

Family	Delayed Children Age	Gender	Non-Delayed Children Age	Gender
1	4.9	M	10.2	M
2	4.2	F	2.1	F
3	6.1	F	6.1	M
4	6.2	M	11.6	F
5	6.8	M	4.0	F
6	7.0	M	6.4	M
7	6.2	M	3.3	M
8	6.9	M	8.2	M
9	4.2	F	7.8	F
10	6.8	F	5.2	F
11	3.7	M	9.4	F
12	3.9	F	2.0	M
13	4.8	F	6.3	M
14	7.9	F	6.0	F
15	4.1	M	5.4	M
16	3.9	M	8.9	F
	Mean 5.5		Mean 6.4	

dependence of the younger children. An attempt was made to recruit the families such that the number of older and younger non-delayed siblings was approximately equal. This strategy was employed in order to counterbalance the effect of age difference between the delayed and the non-delayed siblings.

The ages of the non-delayed children ranged from 2.0 to 11.6 years with a mean age of 6.4 years, as shown in Table 2. The mean age of the non-delayed children thus exceeded that of the delayed by .9 years. A t-test for the difference

between the age means showed that the two means did not differ significantly ($df=15$; $p>.05$). It was therefore assumed that research effect was not due to an age difference between the two groups of children. The delayed group consisted of nine boys and seven girls, whereas the non-delayed group consisted of eight boys and eight girls.

The families for the study were recruited through the Saskatoon Public School Board and through the researcher's professional case load.

With reference to the school board participants, a school board official first telephoned the parents to gain permission for the researcher to contact them. Each family was then contacted by telephone by the researcher for permission to mail information regarding their possible participation. A letter introducing the researcher and the nature of the study (see Appendix I) was then mailed to each family, together with a copy of the consent form (see Appendix II) on which the expectations and conditions for participation were specified. The introductory letter also stated that the researcher would telephone the parents approximately 10 days after the family's receipt of the letter to obtain their consent and arrange a videotaping appointment. The parents' written consent for the family to participate in the research (see Appendix II) was signed at the beginning of the videotaping session.

The parents of the children from the researcher's case load were approached in the same way, except for the exclusion of the first step. The researcher had seen these families only for assessment and occasional counselling sessions and not for ongoing therapy. The possibility that the clinical sample may nevertheless have responded differently was discounted after the parent and child means for directiveness and responsiveness were found non-significant.

The foregoing method was adopted after several other methods had failed during the pilot stage. One of these was to ask for the parents' consent by telephone, without having provided them with written information about the study and their participation prior to the telephone call.

DESCRIPTIVE INFORMATION

Demographic information was obtained through the Personal Data Form (see Appendix III) which was completed by the parents. This form provided descriptive information about the parents' level of education, occupation, income and general state of health. The information was collected to estimate the extent to which the families selected for the study represented the general population, which in turn helped to determine the generalizability of the data. The demographic information was also used in the development of

post-hoc hypotheses about relationships between the descriptive information and the obtained data. Thirdly, the information was used to describe individual families. Dunst and Trivette (1988) had found that level of parent education and socioeconomic status (including occupation and income levels) are positively related to parent-child interaction measures. The demographic information regarding the

Table 3

Income, Years of Education and Ages of the Parents

Family	Family Income*	Years of Education Father	Mother	Age Father	Mother
1	3	14	14	38	39
2	4	13	14	35	35
3	3	12	12	33	31
4	4	10	12	43	43
5	3	14	16	37	39
6	2	12	12	33	31
7	3	10	12	39	32
8	4	12	11	43	44
9	2	12	12	39	26
10	3	8	10	34	31
11	2	12	9	41	33
12	2	13	13	30	30
13	3	12	11	41	31
14	2	11	13	40	35
15	2	13	12	41	35
16	1	11	10	32	30
Means	2.68	11.8	12.1	37.4	34.0

* 1=<$20,000; 2=$20,000-35,000; 3=>$35,000-50,000; 4=>$50,000

participating families is displayed in Table 3. It shows

that all but four of the families were in the $20-35,000 and $35-50,000 per year income categories with six families in each of these two categories. One family earned below $20,000 and three earned above $50,000. According to the latest available figures from Statistics Canada, the average two-parent family income in Canada in 1989 was $51,605. Adding six percent for each of the following two years for cost of living increase, the average extrapolated family income for 1991 would be $54,701. The families participating in the study must therefore be considered middle-to-low income. The mean years of education was 11.8 years for the fathers and 12.1 years for the mothers. The mean age for the fathers was 37.4 years and 34.0 years for the mothers.

Family Dynamics Measure (FDM) - This is a scale of family functioning based on the healthy family systems model by Barnhill (1979). (See Appendix IV for a sample.) The FDM quantifies a number of family dynamics dimensions that are assumed to underlie a healthy family system (Barnhill, 1979). These dimensions are

individuation vs. enmeshment
mutuality vs. isolation
flexibility vs. rigidity
stability vs. disorganization
clear communication vs. unclear and distorted communication
role reciprocity vs. role conflict

These constructs are based on the major systemic family therapy approaches. The scale consists of 62 items that are

responded to on a six point Likert-type scale ranging from "strongly agree" to "strongly disagree". The six dimensions each consist of two subscales. A score is obtained for each of the twelve subscales. The median Cronbach's alpha coefficient of reliability for the six subscales has been reported as .75 by Brackbill et al. (1990) and as .79 by Tomlinson, White and Wilson (1990). Brackbill et al. (1990) used mothers' FDM scores to predict infant temperament in a longitudinal study. Tomlinson et al. (1990), exploring the relationship between the FDM and several socio-demographic characteristics, found a positive relationship between families of higher socioeconomic status and FDM scores, as well as between married parents (versus common-law parents) and FDM scores. Written permission to use the scale and to publish research results was obtained from the research group that developed the scale (see letter of permission in Appendix V). The FDM data are based on only 15 of the 16 participating families because the parents of one family did not wish to complete the scale. The obtained FDM scores are shown in Table 4.

The major role of the FDM in the research was to examine the relationship between the FDM and the key constructs of the present research. The key constructs, contingent

Table 4

Means, Standard Deviations and Standard Deviation Ranges for the Subscales of the Family Dynamics Measure

SUBSCALES	M	SD	SD RANGE
POSITIVE DIMENSION			
Individuation	20.68	4.78	15.90-25.46
Stability	12.96	2.80	10.16-15.76
Mutuality	9.86	2.52	7.34-12.38
Clear Communication	10.32	2.55	7.77-12.87
Flexibility	8.25	2.38	5.87-10.63
Role reciprocity	11.04	3.04	8.00-14.08
Means	12.19	3.01	
NEGATIVE DIMENSION			
Enmeshment	15.11	3.79	11.32-18.90
Disorganization	10.43	3.65	6.78-14.08
Isolation	10.70	3.36	7.34-14.06
Unclear Communication	16.61	4.75	11.86-21.36
Rigidity	25.18	4.43	20.75-29.61
Role Conflict	15.79	4.34	11.45-20.13
Means	15.64	4.05	

directiveness and responsiveness, have been defined in terms that are consistent with family systems theory (Beavers, 1977; Minuchin, 1974). Family systems theory is, in turn, strongly reflected in the FDM subscales. To be contingently responsive, a person must allow the interactive partner to initiate a behavior and then respond in a non-directive manner to that behavioral initiation. Thus, responsiveness may be reflected in the following FDM subscales: Individuation, Mutuality and Role Reciprocity. High responsiveness should further result in raised scores on the

Clear Communication and Flexibility subscales. Directiveness, in contrast, refers to directive, intrusive, controlling and guiding behaviors. Thus, Directiveness may be reflected by the following FDM subscales: Enmeshment, Isolation, Rigidity, and Role Conflict. The use of the FDM assumes that a sample of highly responsive parents will score high on the subscales associated with Responsiveness. Conversely, it is assumed that a sample of highly directive parents will score high on the subscales associated with Directiveness.

The close conceptual connection between the FDM and the major research constructs provides a means of both internal and external control of the data. The FDM, which concerns the parents' and not directly the children's behavior, relates primarily to the first of the two research questions. That question asks whether fathers and mothers behave differently toward their children's antecedents with respect to directiveness and responsiveness. Such a gender difference in the research data should also be reflected in the FDM scores and will thus function as a means of internal control of the data. As shown in Table 5, the means for the FDM subscales did not differ substantially and the grand means for fathers and mothers was 14 in both cases. The

Table 5

Means for Fathers and Mothers on the Positive and Negative Dimensions on the Family Dynamics Measure

	SUBSCALES											
	Positive Dimensions						Negative Dimensions					
	1	2	3	4	5	6	1	2	3	4	5	6
Fathers	21	13	10	11	9	11	15	11	11	18	26	14
Mothers	20	13	10	10	8	11	14	10	11	16	24	18

Fathers' grand mean = 14; mothers' grand mean = 14

mothers' and fathers' subscale scores were therefore combined for the remaining analyses. The only subscale on which the fathers and mothers differed substantially was the sixth on the negative dimension--Role Conflict. The mothers indicated a higher degree of role conflict than the fathers.

With respect to external validity, the description of the participating parents in terms of the FDM will facilitate replication of the obtained data and help to explain discrepancies between the obtained and the replicated data.

TASK

The structured task was developed for the families to accomplish the following objectives: 1. To facilitate the involvement of all the family members. 2. To produce a high rate of behavioral interactions. 3. To produce

behaviors that are likely to be representative of common structured family activities in the home, such as eating, getting ready for bed or playing a family game. The task selected was a puzzle-type activity. Twenty-five colorful felt pieces formed a person when put together on a felt board as shown in Appendix VI. The felt board measured 100 cm x 60 cm x 1 cm. It was placed on a child-size table which enabled the youngest family members to reach most of the board. The family was asked to take turns putting one piece of the person on the board at a time. The turn-taking aspect of the task helped to accomplish the first two objectives of the task. The third objective was met by the cooperative and motivating nature of the task. Some of the youngest functioning subjects, who did not have the verbal comprehension or the visual imagery to know clearly what their role was, stimulated their parents to teach. Both children and adults had many opportunities to be both directive and responsive or a combination thereof.

APPARATUS

Video Camera

The video camera was a JVC GS-S9U. This is an older type of video camera which requires an external video tape cassette recorder for recording. It was equipped with a macro wide angle lense during the recording.

Videotape Cassette Recorder

A VHS Model CR6493AT01 was used for recording and coding.

PROCEDURE

Each family was seen for approximately 45 minutes in a room at a public facility, primarily at a public health office. Different locations in Saskatchewan were used for the videotaping session, since the participating families were living throughout a wide geographic area. The video camera was positioned approximately 10 feet from the nearest edge of the felt board and was aimed down at the felt board at an angle of approximately 45 degrees to capture as many movements as possible. Several incidents indicated that the participants at least occasionally were unaware of the video-camera. In one case, a father removed his chewing tobacco from his mouth and asked his non-delayed son to put it in the waste-paper basket. The child showed obvious signs of being quite revolted as he complied. In several cases, the fathers threatened one of their children with physical punishment if they did not behave acceptably. One child was actually hit by the father, who subsequently looked nervously at the camera. In several other instances, children pointed at the camera and made remarks that indicated their awareness of the camera. Generally, however, the researcher felt that the

presence of the video camera did not inhibit the performance of the participants.

Each session was started with a 15-minute warm-up, free play session for the children and the researcher. During that time the parents completed the Consent Form, the Personal Data Form and the FDM. The parents were then casually asked to position the family around the three edges of the felt board to prevent anyone from blocking the view of the camera, which was aimed at the fourth side. This arrangement allowed a better view of the family members' activities during the coding. The family was then introduced to the structured task which was explained by the researcher. The four members of each family were asked to, in turn, place a piece of felt on the board toward the completion on the puzzle. The exact instruction to the family members was phrased in language sufficiently simple to provide some information to even the youngest subjects. The researcher read the instruction in an expressive voice so that the youngest children were motivated. The exact instruction was as follows:

> NOW I'M GOING TO TELL YOU WHAT TO DO. FROM THESE PIECES (pointing to the felt pieces on the felt board) YOU CAN MAKE A PERSON; SO I WANT YOU TO MAKE THEM INTO A PERSON. THE PERSON SHOULD LOOK LIKE THIS (holding up a small black and white picture of the completed person as shown in Appendix VI) WHEN IT IS FINISHED. LOOK AT IT QUICKLY BEFORE I TAKE IT AWAY AGAIN. (The picture is removed). NOW, THE TRICK IS THAT ALL FOUR OF YOU HAVE TO TAKE TURNS AND EACH ONE OF YOU CAN ONLY PUT ONE PIECE ON THE BOARD AT A TIME AND THEN IT IS THE NEXT

PERSON'S TURN. O.K.? YOU MAY NOT GET IT PERFECT, BUT JUST DO THE BEST YOU CAN. IT IS ALRIGHT TO HELP EACH OTHER IF YOU WANT TO AND IF YOU THINK THAT ONE PIECE IS NOT PUT ON RIGHT THEN YOU ARE ALLOWED TO PUT IT WHERE YOU WANT TO WHEN IT IS YOUR TURN. THERE IS NO NEED TO HURRY. YOU'LL HAVE AS MUCH TIME AS YOU NEED. BUT DON'T FORGET TO TAKE TURNS. O.K.? IF YOU FINISH BEFORE TWENTY MINUTES ARE UP, THEN JUST TAKE THE PIECES OFF AND START OVER AGAIN. DO YOU HAVE ANY QUESTIONS? ALRIGHT? YOU CAN START NOW. HAVE FUN.

The researcher set the VCR to record using the remote control before the end of the instruction. The timing began as the last word in the instruction was spoken. After twenty minutes, the experimenter ended the session. Any questions the family members had were answered at that time.

CODING

The coding method was based on the response-class matrix developed by Mash et al. (1973). Mash et al.'s (1973) response-class matrix made possible the coding of person A's antecedent and person B's consequent. The behavioral coding categories to be used in this study were Responsive, Directive, Responsive-Directive, Non-Directive Initiation, and No Behavior (see the Coding Manual in Appendix VII for operational definitions). These five behavior categories were positioned horizontally along the top and vertically to the left so as to create a matrix of twenty-five cells through five rows and five columns (see Coding Sheet Two in Appendix VIII). The behaviors listed at the left side are

the antecedents and those along the top are the consequents. Another coding sheet was developed for this study (see Coding Sheet One in Appendix VIII) on which the coding was first recorded. That sheet made possible the identification of given coded segments after the coding. This sheet aided the reliability-training and analysis. The obtained tallies were then transferred to the response-class matrix. The response-class matrix has been used by Cunningham et al. (1981) and Hanzlik and Stevenson (1986) both of whom also altered the behavioral categories to serve the purpose of their studies. Only the five consequent totals (i.e., the sums of the columns in the matrix) summed across the antecedents were analyzed.

The antecedents and consequents were coded every 16 seconds. A counter, which can be displayed on the video screen, was set to zero as the last word in the instruction to the family was spoken. The counter allowed the coder to rewind the tape and replay a particular behavior in order to assure accurate coding. The VCR was set at Super Long Play (SLP) during the recording. At that speed, the counter moves five counts approximately every 16 seconds.

The first behavioral unit in each 16-second time segment emitted by the person in the antecedent position was noted by the coder. Next, the first occurring behavioral unit following the antecedent that was emitted as a response by

the person in the consequent position was noted and a tally was placed in the matrix cell intersecting the antecedent row and the consequent column. (For further information, please refer to the Coding Manual, Appendix VII.) The recording of each family was coded eight times. Thus, eight different response-class matrices were used for each family. On four of these the antecedent behaviors of the intellectually delayed child and the sibling were coded first against the mother's and the father's consequent behaviors. On the remaining four matrices, the father's and mother's antecedent behaviors were coded against the delayed child and the sibling's consequent behaviors.

Reliability - The Kappa (Cohen, 1960) reliability coefficient (K) was used to estimate the inter-rater reliability as recommended by Hartman (1988). The Kappa is an inter-coder reliability measure which takes into account the probability that agreements may occur by chance. Following is the formula for the K coefficient:

$$\text{Kappa } K = \frac{p^{o}-p^{c}}{1-p^{c}}$$

where p^{o} is the proportion of observed agreements and p^{c} is the proportion of chance agreements. p^{o} itself is defined as the number of agreements ÷ agreements + disagreements. This is the reliability coefficient most frequently used in research. However, it is likely to overestimate the degree

of reliability (Cohen, 1960).

In order to maintain a high level of reliability of the codings, the following three-step co-coder training program was followed:

Step one: Prior to the coding, the researcher and a second coder trained together by coding a number of practice segments. This training continued until the coding rules were fully developed and both coders were confident that they understood them and agreed to them.

Step two: The researcher and the second coder coded the same taped episodes separately until a Kappa reliability coefficient of at least .70 had been reached for each of three consecutive episodes. (An episode was defined as a 15-minute videotape recording session in which the

Table 6

Kappa Inter-Rater Reliability Coefficients

FAMILY	ANTECEDENT	CONSEQUENT	K
3	Mother	Delayed Child	.94
7	Delayed Child	Father	.73
8	Father	Delayed Child	.74
9	Non-Delayed Child	Father	.78
10	Father	Delayed Child	.82
11	Non-delayed Child	Father	.88
12	Father	Delayed Child	.89
13	Mother	Non-Delayed Child	.81
14	Delayed Child	Mother	.79
15	Delayed Child	Father	.88

antecedents of one person and the consequents of another person were coded on the response-class matrix.)

Step three: During the coding of the data for the study, the two coders coded separately the same ten randomly chosen episodes. If the Kappa reliability coefficient for any one episode fell below .70, steps one and two were repeated. As shown in Table 6, the final K coefficients ranged from 73-94.

The raters agreed that the degree of coding reliability was highly dependent on the families' communication style. Some families articulated and referenced clearly. In other families, some or all of the members articulated poorly and referenced vaguely.

A second type of reliability check was made by the virtue that each of the four family members in each family appeared as an antecedent twice. Their frequencies should therefore ideally be identical. This was an intra-rater reliability check. The Kappa coefficient was calculated for five randomly selected families. As shown in Table 7, these intra-rater reliability coefficients ranged from 67 to 97. Again, these coefficients were as indicative of the families' communication style as of the coders' reliability.

Table 7

Kappa Intra-Rater Reliability Coefficients for Pairs of Antecedents

FAMILY	ANTECEDENTS	K
3	Father	.97
	Mother	.84
	Delayed Child	.89
	Non-Delayed Child	.94
4	Father	.72
	Mother	.87
	Delayed Child	.92
	Non-Delayed Child	.87
5	Father	.72
	Mother	.67
	Delayed Child	.80
	Non-Delayed Child	.84
8	Father	.88
	Mother	.91
	Delayed Child	.95
	Non-Delayed Child	.78
12	Father	.83
	Mother	.90
	Delayed Child	.89
	Non-Delayed Child	.88

* * *

The methodology presented in this chapter was carried out during the spring and summer of 1991. The data collected during this period was coded and analyzed during the winter of 1991-1992. The results of the coding and the analyses are presented in the following chapter.

CHAPTER IV

RESULTS

OVERVIEW

This study focuses on five hypotheses concerning directive and responsive behavior patterns in families with a young intellectually delayed child and a non-delayed child. Each of these hypotheses will be explored in this chapter. In addition to the Responsive and Directive behavior categories, categories referred to as Responsive-Directive, Non-Directive Initiation and No Behavior were also included. The Responsive-Directive category was included because it may be the most effective type of social behavior for teaching an intellectually delayed child. The Non-Directive Initiation category provided a measure of the self-initiated behaviors which, combined with the Directive category, provided an even more complete measure of behavioral initiation. The purpose of the No Behavior category was to estimate the percentage of the total behaviors in each of the

four other categories. This was possible because by including this category, a finite number of tallies existed for each family, namely 50 tallies for each dyad.

Each of the five hypotheses was explored by subjecting the family members' behavioral consequents to several types of analyses. However, before discussing these analyses it is important to briefly review the nature of the coded data. While the behavior of each family member was coded both as antecedents and as consequents, only the consequents were analyzed. The consequents were temporally and thematically related to the behavior of the dyadic partner's antecedents. However, the antecedent person's behavior was not necessarily (and not frequently) directed at the dyadic partner. This is because four people were interacting simultaneously. As the antecedent behavior could be directed toward one or more of the other three family members, or to no one in particular, the antecedent was frequently not a communication directed at the dyadic partner. The following illustrates how the eight sets of consequents were formed:

- Delayed child as antecedent and father as consequent
- Non-delayed child as antecedent and father as consequent
- Delayed child as antecedent and mother as consequent
- Non-delayed child as antecedent and mother as consequent

- Father as antecedent and delayed child as consequent
- Father as antecedent and non-delayed child as consequent
- Mother as antecedent and delayed child as consequent
- Father as antecedent and non-delayed child as consequent

The consequents were analyzed statistically using analyses of variance (ANOVA), percentages and correlations. The F-ratios and correlation coefficients are displayed in Appendix X. The parents' consequents were analyzed in one set of ANOVAs and the children's in a second. For each set, one ANOVA was carried out for each of four of the five behavior categories. The fifth category in each set did not receive sufficient tallies for a statistical analysis. Thus, a total of eight ANOVAs were carried out.

In addition, qualitative analyses were performed to discover post hoc hypotheses concerning how the family members influence each other. These analyses were both numerical and descriptive. The descriptive analyses are presented in the form of case studies based on the pattern matching method (Yin, 1984).

HYPOTHESES ONE, TWO AND THREE

The ANOVAs relevant to hypotheses one, two and three were a 2 x 2 (parents as consequents x children as

antecedents) design with repeated measures on the parent factor. One ANOVA was done for each of the following behavior categories: Responsive, Directive, Non-Directive Initiation and No Behavior. The behavior patterns of several of the families will be highlighted in relation to their demographic data.

The three hypotheses predicted that 1) the frequency of consequents would be lower for fathers than for mothers, 2) parents would be less responsive toward their delayed than toward their non-delayed children, and 3) parents would be more directive toward their delayed than toward their non-delayed children.

Parent Responsiveness

The total parent responsiveness consequents are shown in Figures 1 and 2. They accounted for 12.75 percent of the total parent consequents. The consequents for the fathers accounted for 5.80 percent and the consequents for the mothers accounted for 6.95 percent.

The ANOVA for the parent responsiveness category did not show a significant main effect for either the parent factor or the for the child antecedent factor ($p>.05$). The first hypothesis, which stated that the consequents for fathers would be lower than the consequents for mothers, was therefore not accepted for responsiveness. The second

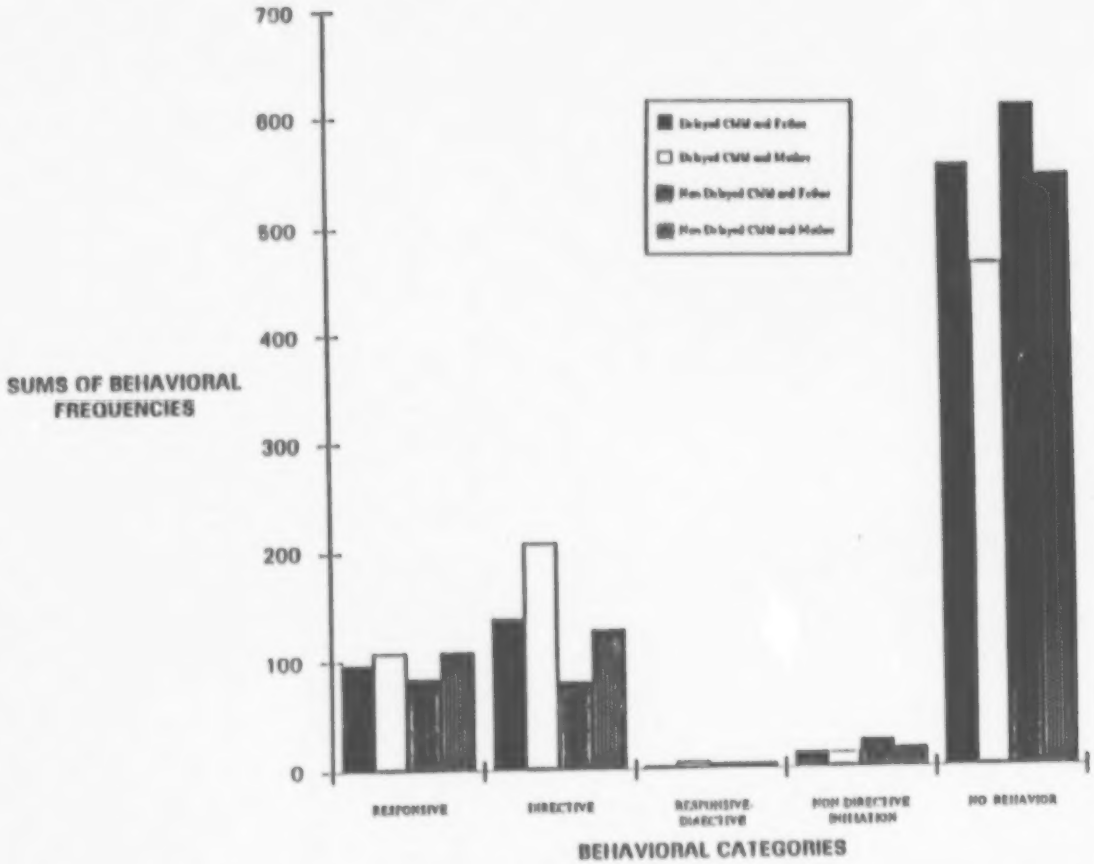

Figure 1. Sums of frequencies for the parent consequents in five behavior categories. The four columns in each behavior category represent four different antecedent-consequent dyads, as indicated in the legend. The No Behavior category is included to show the frequencies of each behavior category in relation to the total frequencies.

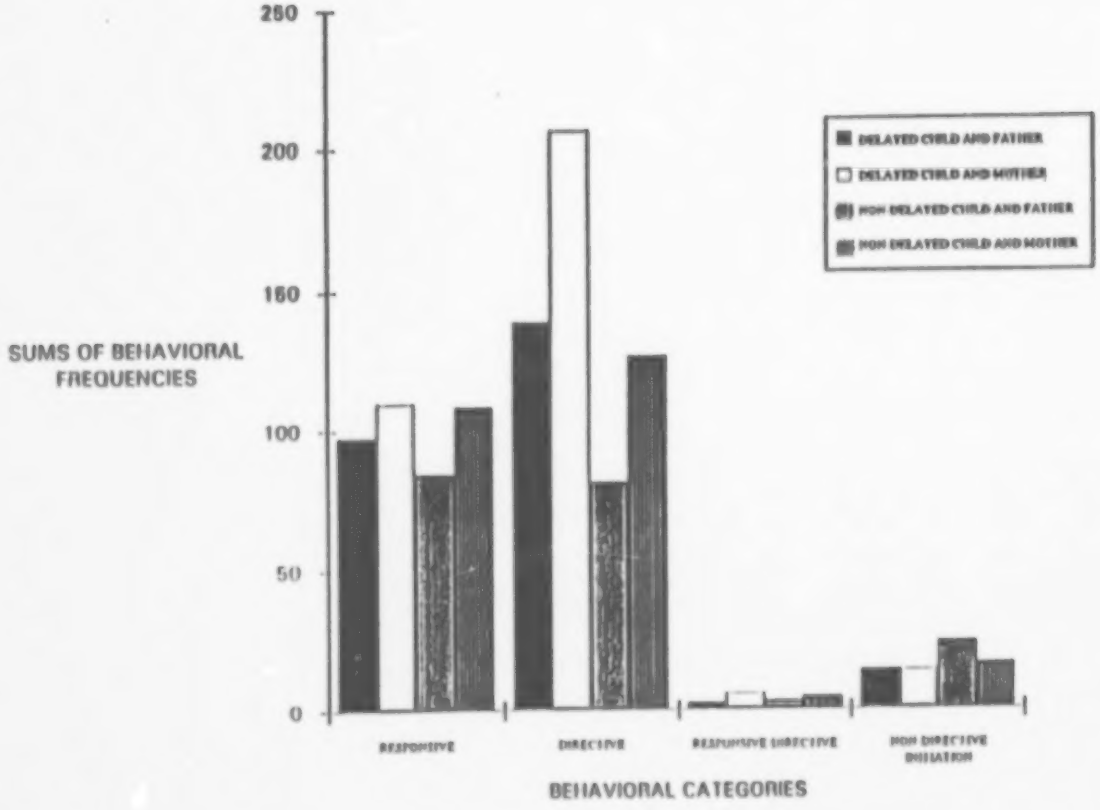

Figure 2. Sums of frequencies for the parent consequents in four behavior categories. The No Behavior category is excluded to amplify the magnitude of the remaining four categories. The four columns in each behavior category represent four different antecedent-consequent dyads, as indicated in the legend.

hypothesis, which stated that parents are less responsive toward their delayed than toward their non-delayed children, was also rejected. However, the lack of a significant main effect for the parent factor could be due to the relatively small sample. The scores for the child factor were therefore combined and a t-test comparing the means for fathers and mothers was carried out. Again the fathers' and mothers' responsive consequents were found to not differ significantly ($t=0.94$; $df=30$; $p>.05$).

A Spearman rank-difference correlation analysis was carried out to measure the degree of relationship between fathers' and mothers' responsiveness. The obtained correlation (Rho) of .32 was not significant ($p>.05$).

Family income was declared by the parents in the following four categories of yearly income: Less than $20,000, $20,000-35,000, $35,000-50,000 and above $50,000. A Spearman rank-difference correlation between family income and parent responsiveness was calculated. The obtained correlation coefficient (Rho) of .504 was significant ($p<.05$). In other words, parental responsiveness was positively related to family income level to a moderate degree.

The parents' level of education was measured in terms of years of formal schooling. Spearman rank-difference correlations were calculated to measure the degree of

relationship between the parents' level of education and responsiveness. The Rho correlation for neither the fathers nor the mothers was significant ($p>.05$).

The three families who were highest in responsiveness had FDM scores that were within ±1 SD on most of the subscales. On the remaining subscales they were all lower than one standard deviation below the mean, equally distributed on the positive and the negative dimensions on the scales. It was therefore assumed that the FDM scores were unrelated to parent responsiveness for this sample.

While it generally was difficult to detect responsiveness while casually viewing the families on the videotape, the parents with the highest scores on responsiveness tended to be nurturant and tolerant toward their children's behavior and, allowing them to express frustration. Appendix 9 shows examples of responsive consequents. Most of these consequents take the form of positive reinforcement. The parents responded primarily by praising their children's behavior. In contrast, the parents with the lowest responsiveness scores were more likely to control the children's behavior.

Parent Directiveness

The total parent directiveness consequents are shown in Figures 1 and 2. They accounted for 17.23 percent of the

total parent consequents, 6.85 percent for the fathers and 10.38 percent for the mothers.

The ANOVA for the directiveness category showed a significant main effect for the parents' consequents ($F=5.51$; $df=1$, $p<.05$). The mothers were more directive than the fathers. Hypothesis one, which stated that the consequents for fathers would be lower than the consequents for mothers, was therefore accepted for directiveness. A significant main effect was also found for the children as antecedents ($F=10.195$; $df=1$, $p<.01$). The parents were more directive toward the delayed than toward the non-delayed children. Thus, hypothesis three, that parents are more directive toward their delayed than toward their non-delayed children, is therefore accepted. No significant interaction effect was found ($p>.05$).

A Spearmen rank-difference correlation analysis was carried out to measure the degree of relationship between the fathers' and the mothers' directiveness. The obtained Rho of .40 was not significant ($p>.05$).

To further explore the relationship between parents' directiveness and the children's responsiveness, several Spearman rank difference correlations were calculated. The fathers' directiveness was positively correlated with the delayed children's responsiveness ($Rho=.45$; $p<.05$) and the non-delayed children's responsiveness ($Rho=.61$; $p<.01$). The

mothers' directiveness was similarly correlated with the delayed children's responsiveness (Rho=.57; $p<.05$) and with the non-delayed children's responsiveness (Rho=.67; $p<.01$).

A Spearman rank-difference correlation between family income and parent directiveness was calculated. The obtained correlation coefficient (Rho) of .40 was non-significant ($p>.05$). In further support of the non-significant correlation for this sample, the parents of the three families highest in directiveness had virtually the same income mean as the parents of the three families lowest in directiveness.

Spearman rank-difference correlations between the parents' level of education and their directiveness were calculated. The obtained Rho coefficients .45 for the fathers and .47 for the mothers were both significant ($p<.05$).

Casual viewing of the taped sessions indicated that directiveness was a dominant feature of the interactions. Mothers frequently took responsibility for carrying out the instructions given to the family by the investigator. The fathers were also directive but often not until the mother had oriented the children toward the task at hand. Then the father took more of a responsibility for helping to keep the children on-task.

Parent Responsive-Directiveness

Only 15 tallies were obtained in this category, as indicated in Figures 1 and 2. The mothers were more frequently responsive-directive than the fathers, obtaining 10 of the 15 tallies (67%). The responsive-directive consequents were directed virtually as frequently at the delayed children (53% of the tallied) as at the non-delayed children (47% of the tallies). Six of the Responsive-Directive tallies were generated by the mother in response to their delayed children. The very small number of tallies obtained in this category demonstrates that parents were either directive or responsive in their interactions with their children. They rarely responded to what the children were doing before they gave them a directive. This pattern would suggest that such families would be low in Individuation, Mutuality, Flexibility and Role Reciprocity on the Family Dynamics Measure and high on their counterparts, Enmeshment, Isolation, Rigidity and Role Conflict. However, as a group, the families that received no Responsive-Directive tallies had scores on the four subscales that were well within one standard deviation of the mean on these subscales.

Parent Non-Directive Initiation

The frequency counts for parents in this category

accounted for only 2.17 percent of the total frequency counts for parents, as indicated in Figures 1 and 2. This category did not show a significant main effect for either the parent factor ($p>.05$) or for the child-as-antecedent factor ($p>.05$). Thus the parents did not differ in the extent to which they initiated non-directive behaviors.

Parent No Behavior

The No Behavior category is shown in Figure 1. It accounted for 69 percent of the total parent consequents. Of these, the fathers' consequents accounted for 53 percent and the mothers for 47 percent. One of the reasons for the high number of no behavior frequency counts was that four, rather than three or two people, were studied simultaneously. Thus, if the dyad being coded was parent X as antecedent and child A as consequent, parent X would be more likely to direct behaviors at parent Y, at child B or at self than at child A. In fact, the chance probability of parent X directing behaviors at child A in the tetrad would only be .33 compared with 1.00 in the dyad. Thus, the chance percent for no behavior would be 66.6 percent compared to the obtained 69 percent.

The ANOVA for the no behavior category showed a significant main effect for the parent factor ($F=6.771$, $df=1$, $p<.05$). The mothers received fewer tallies than the fathers

in this category, indicating that the mothers spent more time than fathers in interaction as compared with being inactive or not varying their behavior (no behavior was defined either as no behavior or as no new behavior). A significant main effect was also found for the children-as-antecedents factor ($F=6.134$, $df=1$, $p<.05$). Thus, in combination the parents interacted more frequently with the delayed than with the non-delayed children. A significant interaction effect was not found ($p>.05$).

HYPOTHESES FOUR AND FIVE

The ANOVA design for testing hypotheses four and five was a 2 x 2 (children as consequents x parents as antecedent) with repetitions on the child factor. These two hypotheses predicted that the delayed children would be both 1) less responsive (hypothesis four) and 2) less directive (hypothesis 5) toward their parents than their non-delayed siblings.

Child Responsiveness

The total responsive child consequents accounted for 18.57 percent of the total child consequents, as indicated in Figures 3 and 4. The delayed children's consequents accounted for 11.47 percent compared to the non-delayed children's 7.10 percent. Thus, the delayed children are

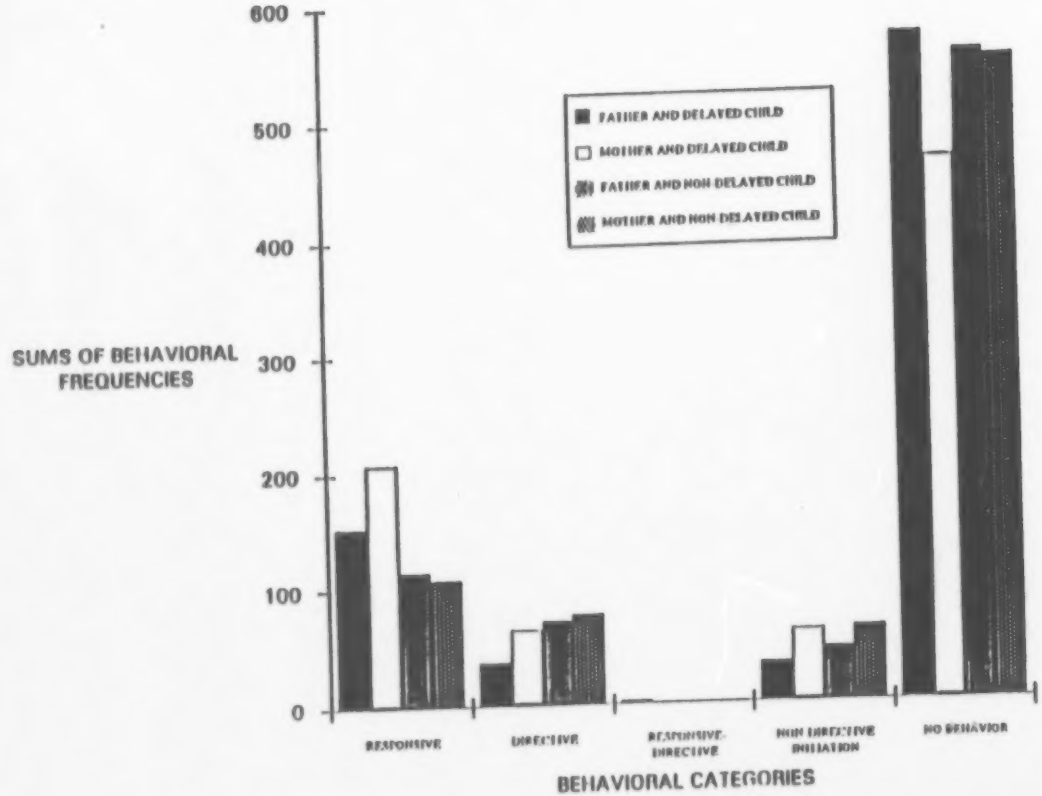

Figure 3. Sums of frequencies for the child consequents in five behavior categories. The four columns in each behavior category represent four different antecedent-consequent dyads, as indicated in the legend. The No Behavior category is included to show the frequencies of each behavior category in relation to the total frequencies.

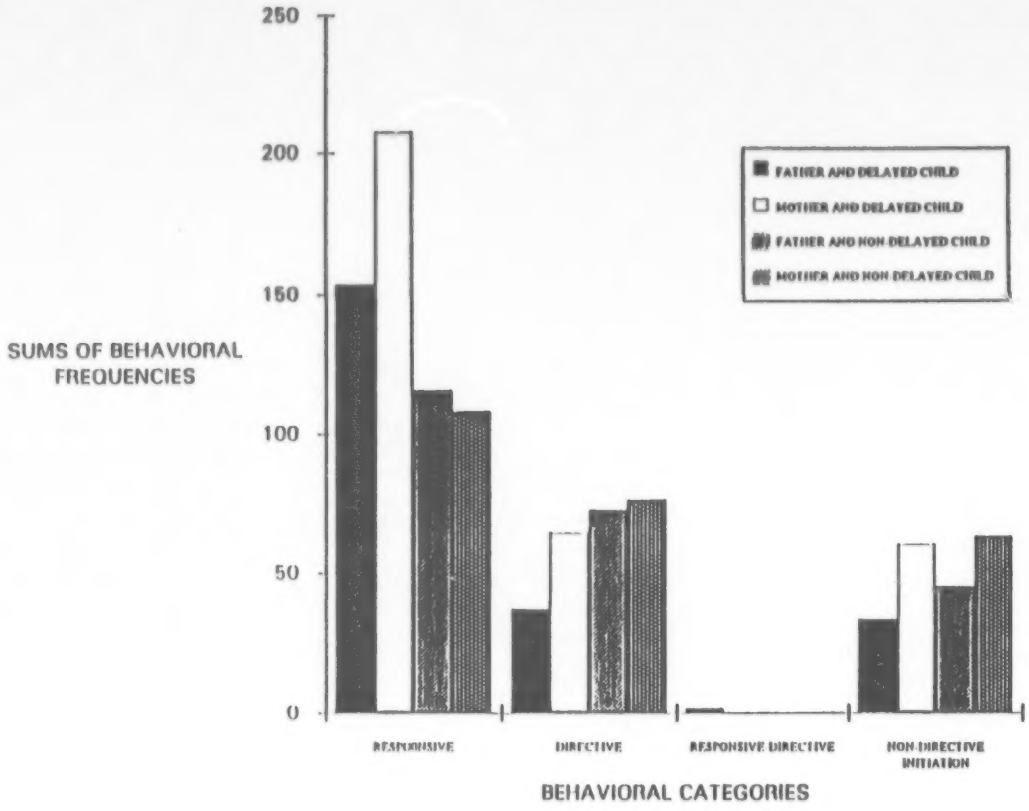

Figure 4. Sums of frequencies for the child consequents in four behavior categories. The No Behavior category is excluded to amplify the magnitude of the remaining four categories. The four columns in each behavior category represent four different antecedent-consequent dyads, as indicated in the legend.

indicated to have been more active than their non-delayed siblings.

The result of the ANOVA for the Responsiveness category showed a significant main effect for the child factor ($F=8.61$, $df=1$, $p<.01$). The delayed children were significantly more responsive toward their parents than were the non-delayed children. Therefore, hypothesis four was not confirmed. A significant main effect for the parents-as-antecedents was not found ($p>.05$) and the interaction effect was also non-significant ($p>.05$). Thus, while the two groups of children differed from each other in responsiveness, they did not discriminate with respect to the gender of the parent.

Child Directiveness

The total directive child consequents are shown in Figures 3 and 4. They accounted for 7.93 of the total child consequents. The delayed children's consequents accounted for 3.22 percent compared with the non-delayed children's 4.71 percent. Both percentages are low and indicate that neither group of children was very directive. The ANOVA did not reveal any significant main effects for the directiveness category ($p>.05$). Therefore, Hypothesis five was not confirmed.

Child Responsive-Directiveness

Only one tally was obtained for the children. This was a delayed child's consequent to the father's antecedent. This behavioral category can therefore not be analyzed further.

Child Non-Directive Initiation

The child consequents obtained in this category accounted for 6.4 percent of the total child consequents, as indicated in Figures 3 and 4. The children did not differ significantly from each other in this category ($p>.05$). However, a significant main effect for the parents-as-antecedent factor ($F=31.64$, $df=1$, $p<.05$) was obtained. Thus, while the two groups of children emitted a similar number of non-directive initiations, they emitted this type of behavior more frequently with their mothers than with their fathers.

Child No Behavior

The No Behavior category is shown in Figure 3. It accounted for 68.54 percent of the total child consequents. The delayed children accounted for 33.15 percent of the no behavior frequency counts, whereas the non-delayed children accounted for 35.38 percent. Thus, the two groups of children did not appear to differ substantially with regard to no behavior, including no new behavior.

The ANOVA for the No Behavior category showed no significant main effects ($p>.05$). Thus, there was no significant difference in the level of behavioral interaction between the two groups of children or in their combined responses to the two parent groups.

Behavioral Initiation Composite

The literature has shown an interest in the frequency of initiation of behaviors by intellectually delayed children (Mahoney et al., 1990; Tannock 1988). Behavioral initiation also has important implications in the context of bi-directional parent-child interaction. It is after all necessary for the children and the parents alike to initiate behaviors if the interaction is to be reciprocal. To obtain a composite measure of behavioral initiation, the tallies for the child Directiveness and the child Non-Directive Initiation categories were combined. Both of these categories are based on behavioral initiation. The 2 x 2 ANOVA showed a significant main effect for the child factor ($p<.05$) but not for the parents-as-antecedent factor. In other words the delayed children were initiating behaviors (directive and non-directive combined) more frequently than the non-delayed children. However, the behavioral initiations were emitted with equal frequency in response to the fathers and the mothers.

FAMILY DYNAMICS MEASURE

The results thus far have indicated that the FDM is not related to the parents' responsiveness and directiveness. To further test that relationship, several Spearman rank-difference correlations were calculated. Only data on mothers were used because the mothers were found to be as responsive as and more directive than fathers. Non-significance for mothers was therefore assumed to also hold for the fathers. The first of these involved three of the six subscales from the positive dimension, namely Individuation, Mutuality and Role Reciprocity. These were thought most likely to be related to responsiveness. The three FDM raw scores for these scales were added for each person and averaged. The resultant mean score was then correlated with the responsiveness consequents, averaged over the delayed and non-delayed child antecedent conditions. The obtained coefficient was not significant ($Rho=-.38$; $p>.05$). The same operation was performed using the four subscales from the negative FDM dimension most likely to be related to directiveness, namely Enmeshment, Isolation, Rigidity and Role Conflict. The obtained correlation coefficient was again not significant ($Rho=-.27$; $p>.05$). Finally, an attempt was made to demonstrate a relationship between the full negative dimension of the FDM scale and mothers'

directiveness. This attempt was also unsuccessful (Rho=.01; p>.05).

Further attempts were not made. The directiveness of the mothers, who were the most directive, would be most likely to show a relationship with the negative dimension of the FDM. Because that relationship was not confirmed, it was assumed that correlation efficients between other FDM subscales on the one hand and responsiveness and directiveness on the other hand would be non-significant. One explanation for the lack of significant correlations may be that the FDM is a measure of the parents' perception which may not be equivalent to a behavioral measure.

POST-HOC ANALYSES OF THE CHILD BEHAVIOR PATTERNS

One of the most notable results of this study was the delayed children's relatively high level of interactive behavior, relative to data from previous studies. They were as directive, and more responsive than, their non-delayed siblings. This phenomenon warrants further examination.

The focus of the following analysis was aimed at the children's behavior because the few previous studies that had included fathers had not found the delayed children to be more interactive. The relatively high interactive level of the delayed children therefore was more likely related to the behavior of the non-delayed children. In order to

further explore that hypothesis, the directiveness and responsiveness of the delayed children were examined.

First, Spearman rank-difference correlations of the relationships between child directiveness and age and between child responsiveness and age were calculated separately for the delayed and the non-delayed children. None of these correlations (Rho ranging from .02 to .20) were significant ($p>.05$).

The consequents for the children's directiveness and responsiveness were therefore analyzed in terms of the children's birth order. In other words, the consequents for the younger and elder delayed and non-delayed children were compared. Statistical analyses to determine significance of differences were not carried out because of the small numbers of children in each cell and because the analyses were exploratory rather than confirmatory. Only fifteen sibling pairs were included in the analyses because the sixteenth pair was a set of twins.

Table 8 exhibits the mean number of consequents for responsiveness. It shows three phenomena. The first of these is that the delayed boys on average were more responsive than the non-delayed children regardless of gender and birth order. The second phenomenon is that the elder delayed girls on average were drastically more responsive

Table 8

Mean Consequents for Younger and Elder Delayed and Non-delayed Children's Responsiveness

		Responsiveness	
		Younger	Elder
Males	Delayed	23.2 (n=6)	21.0 (n=3)
	Non-delayed	13.0 (n=4)	13.0 (n=3)
Females	Delayed	14.5 (n=2)	28.8 (n=4)
	Non-delayed	15.0 (n=4)	14.5 (n=4)

than the younger delayed girls. The third phenomenon is that the elder delayed children, regardless of gender, were considerably more responsive than the elder non-delayed children.

Table 9 exhibits the mean number of consequents for directiveness. These data show the younger non-delayed boys on average to be dramatically more directive than the other children regardless of gender and birth order. The younger non-delayed girls' directiveness is only slightly elevated relative to the younger delayed girls. In other words, the combined directive consequents for the younger non-delayed children are on average substantially higher than the directive consequents of the other groups of children.

Table 9

Mean Consequents for Younger and Elder Delayed and Non-delayed Children's Directiveness

		Directiveness	
		Younger	Elder
Males	Delayed	5.3 (n=6)	7.7 (n=3)
	Non-delayed	13.3 (n=4)	5.7 (n=3)
Females	Delayed	6.0 (n=2)	6.3 (n=4)
	Non-delayed	9.8 (n=4)	6.8 (n=4)

Summary

This post-hoc analysis clearly confirmed the hypothesis that the delayed children tended to be more responsive to their parents than the non-delayed children. However, a possible interaction effect was found. Thus, while the responsiveness of the younger delayed girls was at the level of the non-delayed children regardless of gender, the responsiveness of the elder delayed girls was dramatically elevated above the other groups. With regard to directiveness, the younger non-delayed children tended to be more directive than other groups of delayed and non-delayed children.

Does this information help to clarify whether the behavior of the delayed children is related to the behavior

of the non-delayed children? The finding that the elder non-delayed children were less responsive to their parents than the delayed children suggests that they were more passive and in this way may have facilitated the greater responsiveness of the delayed children. Although the elder non-delayed children were as directive toward their parents as the elder delayed children, the elder non-delayed children did show a lower level of directiveness than the quite directive younger non-delayed children. Thus, a trend seems to exist toward support of the hypothesis that the elder non-delayed child plays a nurturing role in relation to the delayed sibling (Stoneman et al., 1987).

QUALITATIVE ANALYSIS

The foregoing analyses have been concerned solely with the mutual relationships between the parents and the children. An examination of the family interactions in which the interactions between the children and between the parents are included may further help to explain the origin of the relatively high interactive behavior of the delayed siblings in this study.

The numerical post hoc analysis suggested the possibility that the elder non-delayed children may have facilitated the interactive behavior of the delayed children by being more passive toward their parents than they would

have been had the sibling not been delayed. They may have facilitated the raised level of responsiveness and directiveness of the delayed children relative to previous studies by playing the role of a weak competitor. The delayed children may have seen themselves as being involved in competition for their parents attention. The elder non-delayed children would most likely have won that competition because of their greater intellectual competence. However, by being relatively passive the non-delayed siblings may actually have let the delayed children win the competition. This qualitative analysis therefore compared the behavior of the elder delayed and non-delayed children as well as the behavior of the elder and the younger children. If the proposed facilitation hypothesis is correct, the following pattern is predicted: The delayed elder children should be more aggressive and assertive and less passive in relation to their siblings than the elder non-delayed children. Moreover, the younger non-delayed children should be more aggressive and assertive and less passive than the other siblings.

The qualitative analysis was a matching patterns approach based on the case study method proposed by Yin (1984). This method "compares an empirically based pattern with a predicted one . . . If the patterns coincide, the results can help a case study to strengthen its <u>internal</u>

validity" (original emphasis) (p. 103). The matching patterns approach requires that the case, or cases, to be studied be identified. Although all the family relationships will be considered, the cases to be studied in this analysis are the children. Only four families were needed for the analysis, namely families with an elder delayed boy, an elder delayed girl, an elder non-delayed boy and an elder non-delayed girl.

The behavior of these four children should conform to the predicted patterns. The behavior of the children will also be related to the structure of the family system (Minuchin, 1974) and the general health of the family system (Barnhill, 1979).

To examine the interactional behavior patterns of the four members of each family, the behaviors of the first part of the taped session for each of the four families were transcribed. The transcription proceeded until the researcher had formed an initial hypothesis about the interactional patterns of the family members. This was followed by careful viewing of the remainder of the taped session to confirm the initial hypothesis. Occasionally, further transcription was done to strengthen or to change the initial hypothesis. Following the development of an outline of the behavior patterns for each family, this pattern was compared with the relevant quantitative data in

order to further validate the findings. In order to preserve objectivity, the qualitative patterns were not compared to the quantitative data until after the qualitative patterns had been obtained. For the quantitative data, scores below and above one standard deviation were considered significantly below and above the group mean. Further refinements were made to the patterns during the writing.

For the purpose of the following descriptions, the quantitative information will be presented at the beginning of the description of each family. The four families selected were numbers 4, 5, 10 and 13. These families were randomly selected within the selection criteria.

FAMILY FOUR

In this family, the elder child is an 11-year old girl and the delayed child is a 6-year old boy. The quantitative analyses showed both children to score very high in responsiveness. The father was high average in responsiveness while the mother was above average in responsiveness. The delayed boy was average in directiveness whereas his non-delayed sister was below average in directiveness. The parents were average in directiveness. The parents' scores on the FDM were also average, indicating that the parents' perception of the family functioning is healthy.

The most noteable behavior pattern was that the non-delayed girl was patient though occasionally somewhat directive, toward the delayed child. She showed patience, for example, by letting her delayed brother take a turn before her and several times waited while he took an extra turn. Her behavior allowed her brother freedom to be quite spontaneous and fare well in the competition for her parents' attention. She showed directiveness, though not frequently, by guiding her brother more like a parent than a sister. In this way she was part of the parental subsystem (Minuchin, 1974). Her patience is difficult to illustrate because it took the form of lack of interaction. However, the following interactional segment illustrates her directiveness (A is the delayed child and B is the non-delayed child):

A: "It's my turn". He holds up a piece of the puzzle. "What's that".

B: Mom and Dad simultaneously, "That's his hair". Mom adds, "Remember?"

A: Places his piece on the puzzle.

Mom: "No, we've gotta make his head first".

B: "Yes, make his head".

A: "Oh".

B: Points first to the pile of puzzle pieces and then to the puzzle, saying, "Take his hand there and put his hand there".

A: "Oh, man" succeeded by grunts and groans. He places the hand on the side of the puzzle person that already had a hand.

B: "No, that hand is already on there".

A: Picks up the first hand and replaces it with the second hand.

B: "Okay, then". Chuckles. "Put it there then".

A: Complies with his sister's directive.

B: Corrects the position of the hand that A had just placed.

By her directiveness, the non-delayed elder sibling is clearly facilitating her delayed brother's responsiveness. Both parents were quite directive toward their son, telling him what to do, guiding him and correcting him. However, the parents were also responsive toward him, commenting positively and humorously and repeating his verbalizations. In this way they facilitated both his responsiveness and directiveness. The following is an example of the humorous interaction between the father and the delayed son:

A: Places a piece on the puzzle, saying "Ho-ho-ho".

Dad: "Ho-ho-ho. That's not a Santa Claus".

A: "Yes, Santa Claus".

Dad: "No, that's not Santa Claus", he laughed.

B: Interrupts, saying "Daddy's turn".

The father interacted easily and maturely with his non-

delayed daughter. In contrast, very little interaction took place between the non-delayed girl and her mother.

Conclusion: The behavior of the non-delayed elder daughter in this family corresponded well to the predicted behavior pattern. Her patient and controlled behavior as well as her directive behavior allowed the younger delayed boy to be both responsive and directive. By being part of the parental subsystem she actually played two roles. While she was in a parent role in relation to her younger delayed brother, she was in a child role in relation to her parents. This was also clear in the quantitative data which showed her to be low in directiveness toward her parents.

FAMILY FIVE

The elder child in this family is a 6-year old delayed boy. The younger non-delayed sibling is a 4-year old girl. According to the quantitative data, the delayed child was above average in responsiveness to his father and average in responsiveness to his mother. He was above the mean in directiveness in relation to both parents. The non-delayed younger girl was above the mean in responsiveness and average in directiveness in relation to both parents. The father was above the mean in both directiveness and responsiveness toward both children. The mother was within the average range in directiveness and on the borderline between average

and above average in responsiveness. Both parents' FDM scores followed closely the mean of the sample for all the dimensions indicating that the parents' perception of the family functioning is healthy.

The elder child in this family--the delayed boy--tended to be demanding and negative toward his father. This was clearly a rebellious response to the father's directiveness. Although the father spoke to the children in a gentle voice, he firmly guided both children in their actions. The mother's role appeared to be to support the father's control. The following excerpt of the family interaction was typical. It shows the elder delayed boy's negative and demanding form of directiveness and the father's controlling and guiding form of directiveness. It also shows the somewhat timid behavior of the non-delayed girl and the mother's support of the father's control (A is the elder delayed boy and B is the younger non-delayed girl):

Mom: "I guess it's A's turn".

Dad: "Yes, you start, A".

A: Picks up a piece of the puzzle and reaches toward the puzzle to place the piece.

Dad: "Yes, put it down and then it's Dad's turn".

B: "And it's my turn and Mommy's turn and my turn" pointing to her mother and herself in turn.

Mom: "It's Dad's turn".

Dad: "It's Dad's turn now".

Mom: "Yes".

Dad: Takes away a piece A is holding.

A: "Daddiii", he says in a shrill and protesting tone and looks insulted.

Dad: "You had yours. We're gonna take turns. Right? Okay, it's Dad's turn.

A: Picks up a piece again.

Dad: Takes it from him saying, "Just wait, please".

A: Daddiii" he complains again.

Dad: "Just wait; it's Dad's turn, then Mom's turn.

A: Crosses his arms over his chest, shakes his head and looks angry.

B: "And my turn".

Dad: Takes his turn, everyone watching as he places his piece.

Mom: Begins to pick up a piece.

Dad: Now it's Mom's turn". Puts his arm affectionately around A.

Mom: "Okay". She completes her turn by joining two half spheres.

Dad: "Holy . . .(not intelligible). There's his head. Okay. Now B's turn.

B: Moves toward the pile of puzzle pieces.

Dad: "Are you going to find some eyes?"

B: Picks up a small round piece and puts it on the "head".

Mom: "Are you making him upside down?"

B: Emits an embarrassed laugh.

Mom: "Put his eyes up here". Points.

B: Picks up another small round piece and places it as the other eye.

Mom: "Ooohh".

Dad: Good. Okay. Now, A, what are you going to put on".

A: "His hand". He picks up a hand.

Dad: "His hand". Points to the end of the puzzle person's arm.

A: Places the hand at the end of the arm.

Conclusion: The responsiveness and directiveness of the delayed child in this family was facilitated by his father. His behavior was similar to that of the younger delayed child in family four because he had little competition from his very young sibling for his parents' attention. However, as indicated, his father kept him challenged with his directiveness to which the delayed boy responded with some negative and rebellious behavior.

FAMILY TEN

The children in this family are both girls. The non-delayed is the younger of the two and is just over five years of age. The delayed sister is nearly seven years of age.

The quantitative data showed that both girls were within the average in responsiveness, though the delayed girl as the elder should have been above the mean. As predicted by the quantitative data, the delayed child was below the mean in directiveness whereas her non-delayed younger sister was above the mean. The mother was average in responsiveness whereas the father was below the mean. Both parents were low-to-average for the sample in directiveness toward the delayed child whereas both were high in directiveness toward the non-delayed child. This relatively low degree of parental directiveness toward the delayed child may explain this girl's lower-than-predicted responsiveness. The FDM showed the mother to be average on all dimensions except rigidity on which she scored high. The father scored high on enmeshment, disorganization, isolation, unclear communication, rigidity, role reciprocity and role conflict whereas he scored low on flexibility. The father, then appears to perceive the family as dysfunctional whereas the mother has a healthier image of the family. The father isolated himself through most of the taping session by leaning backward in his chair (a rocker) just watching and otherwise being uninvolved. He was nevertheless pleasant and sometimes laughed and chuckled along with the rest of the family.

The younger non-delayed child in this family was

assertive, directive and judgmental. This behavior pattern is understandable from the point of view that she, as the younger sibling, is in full competition for her parents' attention. In contrast, the elder delayed child was compliant and easily intimidated. Her behavior was very similar to that of an elder non-delayed girl, although for a different reason. While the elder non-delayed girl may be relatively passive because she takes on a caretaking role, this elder delayed girl is likely to have selected compliance as a way to compete with her assertive sister for her parents' attention. She seemed to accept her submissive role because she was laughing frequently, thereby facilitating a light hearted mood in the family.

The following excerpt shows the aggressiveness of the younger non-delayed girl, the timid and yet cheerful behavior of the delayed girl, the mother's unsuccessful attempts at organizing the family and the father's lack of involvement. When this episode begins, the puzzle person has been assembled once and the family is starting a second one:

Mom: "Okay, now. A circle first".

B: Joining two spheres she says, "Yes, a circle first". She reaches to the pile of puzzle pieces for another piece.

Mom: "A. Let A put an eye on or somethin'".

A: Picks up a small round piece and places it on the

"face".

B: Moves the piece A placed and says, "Eye. Eye goes up here".

A: Touches the piece as though she accepts B's action.

Mom: "Where do the eyes go".

B: Reaches to the pile for another piece.

Mom: "No, let A do it. The eye is A's".

A: Puts on the other eye.

B: Not pleased with the "eye's" position she says, "A!" in a frustrated tone of voice. She shakes her head and while moving the "eye" she says, "You did wrong".

A: Picks up another piece.

Mom: "Now, Daddy. Put that arm on. Tell Daddy to put the arms on".

B: "Daddy. Put the arms on".

A: Places a third "eye" on the "face". Then, with her hands on her hips she looks at her father and says, "No".

Dad: "It didn't have three eyes, eh!"

B: "Oh, no. That's a nose".

A: Reaches for the pile of puzzle pieces again but does not pick up a piece.

Mom: "Okay. Where is the mouth".

Dad: Searches through the pile of puzzle pieces.

A: Laughs.

B: Picks up a piece and puts in on the face saying, "That's teeth". Picks up another piece saying, "There's his eyebrows" and places that piece on the face.

Mom: Mom leans back in her chair laughing.

A: Smiles and claps her hands.

B: Searches through the pile and says, "Hey, where's the other eyebrow". Still not finding the piece she says, "I'm having fun".

Conclusion: The responsiveness of the delayed child in this family was below average because she did not have any clear directions to respond to. The father is socially unresponsive. The mother is not clearly addressing one girl or the other but tends to be more directive toward the non-delayed girl in her attempt to protect the delayed girl's turns. The delayed girl appears to have chosen to compete for her parents' attention by being happy, laughing and clapping hands.

FAMILY THIRTEEN

The non-delayed child in this family is a boy of just over six years of age. His delayed sibling is a girl just below the age of five years. According to the qualitative data, these children were somewhat low in responsiveness and somewhat high in directiveness. More precisely, the non-

delayed son was below average in responsiveness to his father but with the average range in responsiveness to his mother. The delayed girl was below average in responsiveness to both parents. Both children were above the average range in directiveness toward their mother. The non-delayed child was also high in directiveness toward his father but average in directiveness toward his mother.

The mother was quite protective of the delayed girl. The girl in turn acted cranky and immature. This dynamic may have produced the low responsiveness and high directiveness displayed by this girl. The elder brother responded to the attention given to his sister by the mother by occasionally acting jealous and demanding. For example, he said, "If she can do it, I can do it too". This in turn resulted in a reprimand by the mother.

The non-delayed boy seemed isolated in the family. He was isolated physically by standing at one side of the board by himself. His father was at the end of the board and the mother and sister opposite the boy. No affect and few verbal exchanges occurred between father and son. The son spent much the time listening to the others and observing.

The parents seemed to form a consistent parent subsystem. They worked like a team by taking turns at directing the children's activities. They seemed to enjoy each other and did not show any conflicts. The children

formed a child subsystem in that the parents were in control of their behavior. The father appeared quite responsive but also directive toward both children. He gave the impression of attempting to be fair toward the children and he encouraged the turn-taking.

The following excerpt illustrates the parental team work, the father's rational approach to organizing the children, the mother's protectiveness toward the delayed girl and that girl's cranky behavior pattern, and the non-delayed child's battle for parental attention.

Mom: "Okay, B. You do your piece first".

A: Is working on her own construction.

B: "Just one?". Complies.

Mom: "One piece and then it is A's turn. And it is altogether you guys, though".

Dad: "Okay".

Mom: "We've all gotta make one together".

Dad: Moves some pieces. "Move it this way".

Mom: "It starts that way".

Dad: ". . . down that way".

Mom: "Now, let's start the long way, maybe" and gestures (referring to the length of the board as opposed to the width of the board).

B: "Hey, I know what to do with these things. You put the hands right there".

Mom: "Now, let A have a turn now. You gotta make one. A, you put something on this guy, 'kay".

A: Complies.

Mom: "'kay".

A: Continues.

B: Moves A's piece. "You put it here".

Mom: "No, no, B, let her put it where she wants and when it's your turn you get to move it, okay?"

B: "I can move it anywhere I want?"

A: Completes her turn. "There".

Mom: Says to B, "If you don't think it's right. Okay. Now its. . ."

B: "My turn", completing his mother's statement.

Mom: "M-m-my turn, isn't it?"

B: "Ah, yeah".

Mom: "Daddy and Mommy get a turn too". She looks at Dad who is standing and she chuckles, "I don't remember what the picture looked like".

Dad: "You didn't see the picture?" he says while moving a piece.

Mom: "I did but I don't remember".

A: Works on her own construction.

Dad: Responds to Mom with a brief chuckle and moves a piece placed by A.

A: A whines in response to Dad having moved her piece.

Mom: "These parts fit together", she says while moving another of A's pieces.

A: Whines more loudly. Leans forward on the board, puts her elbows on the board and covers her face with her hands. "Not fair", she says with a clear but dejected voice.

Mom: "Oh, no, there", she half chuckles.

Dad: "We are just laying them all out so we can see them", he says laying the pieces out.

Mom: "Yeah, that is a good idea. Let's put them all out" she says while she helps to spread the pieces.

Dad: "Like a jig-saw puzzle".

Mom: "Yeah".

A: "No-o-oh" she whines while she moves a piece her father placed.

B: "A, we have to put them close together".

Dad: "No. We are going to make a little man! Okay?" He makes a gesture at the puzzle pieces".

A: "No", she says defiantly.

Dad: "We put half the head on there so he looks like a little man.

A: "No-o-oh" she says clasping the piece her father wants. "No we can't".

Mom: "That was Mommy's turn" she says while she tries to take the piece away from A. "No, it all goes together".

A: Walks away from the table whining. Then walks back to her mother's chair. Still whining she says, "Not fair".

Mom: Puts A's piece into the main puzzle construction.

B: Touches a piece and says, "Mom, this goes . . ."

Mom: "Okay. Come honey", she interrupts speaking to A. "You put a piece on".

A: "No" she says, whining. She crawls under the table.

B: Places a piece on the puzzle.

Mom: "No, it's Daddy's turn, honey".

A: "No", she says, whining.

B: "Dad, put the hand on".

A: "No. I'm waiting here", she says in a whiny voice.

Mom: "A, are you gonna play?"

A: "No". She moves in front of her mother and snuggles into her and her mother puts her arms around her.

Dad: "Okay. Daddy put a piece on now".

A: "No".

Dad: "Watch now, Daddy's gonna put a piece on". He fits a piece on the puzzle.

B: "Where's the nose. What's that for".

Conclusion: The delayed girl in this family appears to be directive by being demanding. This demanding behavior may be a reaction to the mother's protective as well as her father's directive behavior. The non-delayed child is not

facilitating, or indeed influencing, the behavior of the delayed girl in this family. The delayed girl gets her attention by acting immaturely whereas the non-delayed boy fights for attention in various ways, such as by being reasonable (like his father), rebellious and self-serving.

Summary

The hypothesis tested in this qualitative analysis was that the elder non-delayed children facilitated the interactive behavior of their delayed siblings by being passive and patient. In other words, they may have played the weak competitor in the competition for the parents' attention. The analysis did not confirm that hypothesis for several reasons. First, as indicated in Table 10, the two elder non-delayed children behaved quite differently. The girl from family 4 behaved as predicted whereas the boy from family 13 was more demanding (directive) and jealous and he was physically and socially isolated from the rest of the family. A second reason was that the interactive behavior of the delayed children, regardless of birth order, was facilitated as often by the parents as by the elder non-delayed siblings.

A pattern did, however, seem to emerge. When one child was assertive and competitive the other sibling tended to be more passive, timid and cooperative. An exception occurred

Table 10

Summary of the Major Behavioral Characteristics of the Children According to Diagnosis, Birth Order and Gender

		Delayed	Non-Delayed
Elder	Boys	(5) High in Responsiveness and Directiveness. Main facilitator: Father.	(13) Occasionally jealous and demanding. Socially and physically isolated.
	Girls	(10) Compliant and easily intimidated. Competes for parental attention by expressing joy. Disorganized family. No main facilitator.	(4) Patient and controlled. Directive by having joined the parental subsystem.
Younger	Boys	(4) Average in Responsiveness and directiveness. Little competition for parental attention. Main facilitator: Non-delayed sister.	(A younger non-delayed male sibling of one of the four elder siblings was not in sample.)
	Girls	(13) Cranky and immature behaviors as strategy in competition for parental attention. Main facilitators: Father's directiveness and mother's overprotectiveness.	(5) Timid. Attempted assertiveness but largely ignored by everyone. (10) Assertive, directive and judgmental. In full competition for parental competition.

(The numbers in parentheses are the families' numbers.)

when one of the parents, or both parents, was intrusive either by being too directive or too overprotective. Then both siblings behaved negatively.

* * *

The results of the study were presented in this chapter. An attempt was made to present the results as concisely as possible with a minimum of interpretation. The purpose of the following chapter is to review the findings, interpret them and attempt to explain them in the light of past research and theory. A brief discussion of the applied implications will also be included.

C H A P T E R V

DISCUSSION

Responsiveness and directiveness have been identified in this dissertation as social behavior patterns that play an important role in the social, language and intellectual development of children. These behavior patterns are therefore especially important in the context of intellectually delayed children. Less certainty exists as to how parents and intellectually delayed children actually behave toward each other with regard to these two behavior patterns.

The relationship between parents and children has been studied with increasing frequency during the past 15-20 years. This work, inspired to a great extent by Hunt's (1961) interactional hypothesis, was guided by Bell's (1968) bidirectional hypothesis and Sameroff and Chandler's (1975) transactional hypothesis. Much less attention has been paid to the family systems view of Minuchin (1974) and others.

This latter view is also transactional and reciprocal in nature. However, because it involves families, it is multi-directional rather than bidirectional. The study of family interaction may provide measures with greater ecological validity than parent-child dyads or even father-mother-delayed child triads.

The following questions are being posed in this dissertation: How responsive and directive are fathers and mothers toward their delayed and non-delayed children? Conversely, how responsive and directive are delayed and non-delayed children toward their fathers and mothers?

The past research information regarding parental responsiveness toward delayed and non-delayed children has been equivocal and may depend to some degree on who is present during the data collection. Thus mother-child dyads may yield different results from mother-father-child triads and from mother-father-delayed child-non-delayed child tetrads. Only a few studies prior to the present have gone beyond the dyad.

A methodological difficulty has existed with studies involving intellectually delayed children. The non-delayed comparison children have virtually always been from families without a delayed child. Since parents with special needs children have had very different parenting experiences than parents without special needs children, they may constitute

two different parent populations. Thus, the possibility exists that observed differences in parent and child behaviors may have been due not just to the child's diagnosis or behavior but also to a difference in parent characteristics. This methodological difficulty was remedied in this study by employing siblings of the delayed children so that the two groups had the same parents.

PARENT BEHAVIORS

The data obtained for the present study showed fathers to be as responsive as mothers toward their children regardless of children's diagnostic category. This finding is at variance with the prediction of this study that fathers would be less responsive than mothers. Thus, the triadic studies by Levy-Shiff (1986) and Stoneman et al. (1983) had found mothers to be more responsive than fathers. It is, however, consistent with results of the dyadic studies by Hanzlik and Stevenson (1986), Mahoney et al. (1990), Tannock (1988b) and Terdal et al. (1976). The relative degree of responsiveness between fathers and mothers is a little explored area. Since the present tetradic data supported the dyadic and not the triadic results, as one would have expected, the relative degree of responsiveness between fathers and mothers is not clarified by the data of this study.

The obtained data also showed the parents as one group to be equally responsive toward their delayed and non-delayed children. This finding is contrary to the study's hypothesis that the parents are less responsive toward their delayed than toward their non-delayed children. Thus, the finding is at variance with Brooks-Gunn and Lewis (1982), Cunningham et al. (1981), Jones (1980), Marfo and Kysela (1988) and Terdal (1976) who also had found parents to be less responsive toward intellectually delayed children than toward non-delayed children. On the other hand, the lack of difference in responsiveness toward the two groups of children obtained in the present study is consistent with the findings by Hanzlik & Stevenson (1986), Mahoney et al. (1990) and Tannock (1988b). The lack of significant differences with regard to parental responsiveness amounts to acceptance of a null hypothesis. However, since a null hypothesis cannot be confirmed, more research attempts should be made to explore various conditions under which mothers and fathers may differ in responsiveness.

The methodological variability among the past studies has made comparison of the results difficult. However, one consistent pattern seems to be that studies finding a difference in parental responsiveness toward the two groups of children used fairly narrow behavioral categories whereas the studies finding parents to be equally responsive toward

the two groups used broad behavioral categories (e.g., praise, interaction or simply any contingent response). The present study employed broad categories and obtained results consistent with other studies using broad categories.

One interesting finding was that the level of parental responsiveness was low relative to its important developmental implications. It accounted for an average of only 12.75 percent of parents' total frequencies, 5.80 for fathers and 6.95 for mothers. This compares with an average of 17.25 for parental directiveness. In other words, parents were not frequently responsive toward their children, regardless of the children's diagnosis. Other studies have not made a direct comparison between the magnitude of responsive and directive frequencies. The reduced parental responsiveness found in this study was evident in casually viewing the video tapes. The parents' directiveness was low relative to the total parental consequents. This was an artifact due to the tetradic nature of the study. The consequents were frequently directed at persons other than the dyadic partner and thus were coded as no behavior.

The hypothesis that parents are more directive toward their delayed than toward their non-delayed children was confirmed in this study. The average number of directive parent consequents to the delayed children's antecedents was 10.7 as compared to 6.45 for the non-delayed children's

antecedents. This difference was significant and is consistent with the finding usually made in the literature under a variety of conditions.

Several theories exist that may explain why parents are more directive toward delayed than toward non-delayed children. One theory by Mahoney et al. (1990), based on Bell and Harper (1977), proposed that parents adjust their behavior to their children's relative level of interaction in an attempt to enhance the children's engagement in the interaction. This theory predicts that elevated parental directiveness would only occur if the children's level of behavioral initiation or interactional behavior was lower than that of the non-delayed children of similar mental age, or if the children were not complying with parental directives at the same rate as the non-delayed children. The obtained data did not support this theory because the delayed children were found to be more responsive and as directive as the non-delayed children.

The second theory, also proposed by Mahoney et al. (1990), is instructional in nature. It holds that parental directive behavior is due to parents' intentions to change their children's behavior through instruction. This theory predicts excessive directive parental behavior merely because the child has been diagnosed as intellectually delayed and not because the child necessarily is underfunctioning in

initiations, interactions or compliance.

The results of the present study favor the instructional theory because a) the delayed children were as initiating as the non-delayed children both in terms of directive and non-directive initiations, and b) the delayed children were substantially more responsive than their non-delayed siblings. As clearly indicated in Figure 5, there was a direct proportional relationship between the parents' directiveness and the delayed children's responsiveness. This relationship was also borne out by moderate-to-high correlations between the parents' directiveness and the delayed children's responsiveness.

Consistent with the prediction in this study, the data showed that mothers were more directive than fathers. In casually viewing the video tapes, directiveness was the dominant impression. The highest degree of directiveness was found in mothers' directive consequents to their delayed children's antecedents. There was a clear tendency in most of the participating families for the mothers to take control of the situation. This phenomenon, namely that mothers in families are responsible for the behavior of other family members, has been discussed as a women's issue (Lerner, 1985). Father occasionally took control and sometimes assumed joint control with the mother. However, more

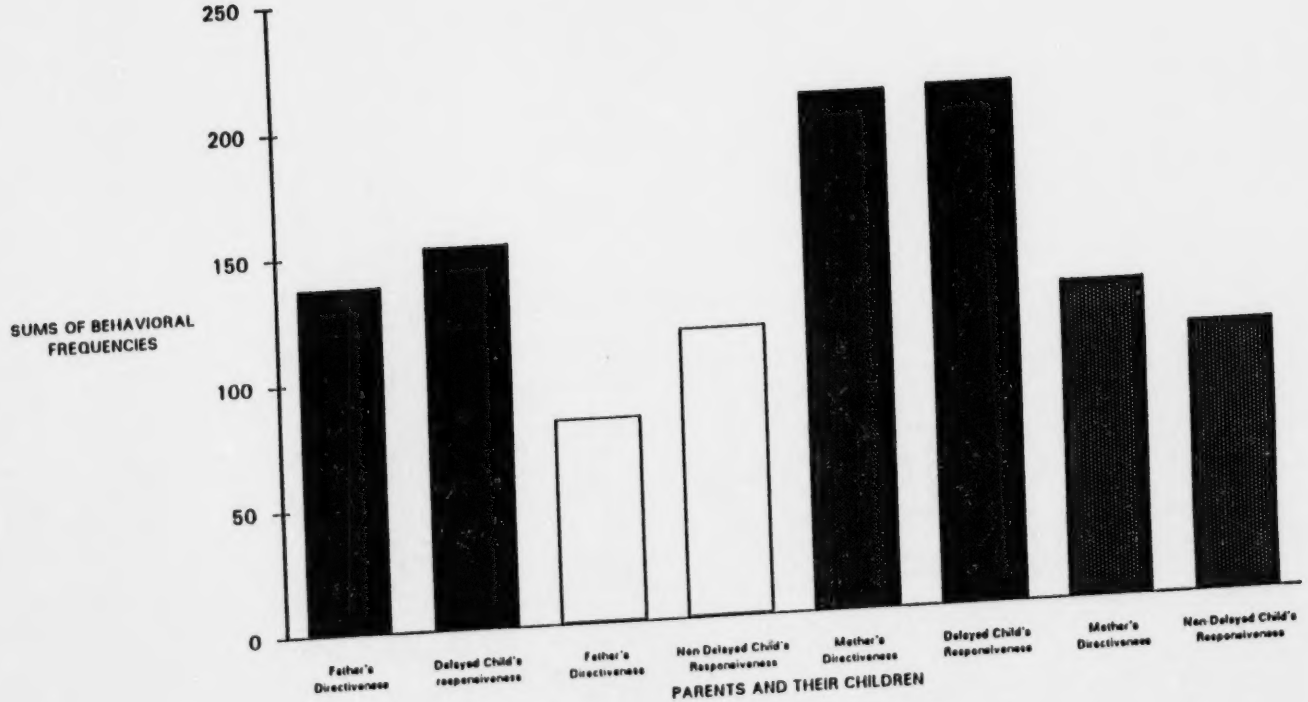

Figure 5. Sums of frequencies for the mothers' and fathers' directiveness shown in relation to the sums of frequencies for the delayed and non-delayed children's responsiveness.

commonly the father remained passive until the mother had organized the children. In the few cases where the father took some degree of responsibility from the start, he appeared to be the dominant parent.

One factor contributing to the relatively high degree of parental directiveness toward the delayed children may have been that the structured task involved a goal that had to be accomplished. Replication of this study using a different type of task or a free-play situation would help to answer that question. Another reason for the relatively high degree of parental directiveness may have been that the parents--mostly the mothers as already indicated--may have been especially directive because they thought that the performance of the delayed child was a primary focus of the research. No such message was of course intentionally communicated to them. The two foregoing reasons are not likely to be realistic because parental directiveness toward the delayed child relative to the non-delayed child is a typical finding regardless of the setting or the activity.

The low relative frequency of the occurrence of the Responsive-Directive and Non-Directive Initiation categories was surprising, especially in the case of the Responsive-Directive Category which might be the most developmentally and socially effective category.

Although some evidence exists concerning the

relationship between parental responsiveness and parental directiveness on the one hand, and intellectual development of intellectually delayed children on the other hand (Mahoney et al., 1985), additional research is required. Some information relevant to this relationship was obtained in this study. First, the significant correlation between parental responsiveness and family income is worth noting. SES has consistently shown to be positively related to intellectual functioning (Beckwith, 1976). Family income is in turn related to SES because SES is measured in part or wholly in terms of family income. If family income thus can predict intellectual functioning, then the likelihood exists that parental responsiveness also can predict intellectual development, because family income and responsiveness were found in this study to be significantly related. The possibility even exists that responsiveness may be causally related to later intellectual development. Responsiveness, is an excellent candidate for that role because it is a behaviorally defined construct. SES and level of education, in contrast, must remain as intervening variables because they are not behavioral and can therefore not directly influence behavior.

Secondly, directiveness, at least in its moderate form, may not be related to intellectual development. Directiveness was not correlated significantly with family

income. Directiveness may therefore not be related to SES. Consequently, using the foregoing argument, directiveness may not be related to intellectual development.

Degree of maternal education has also been associated with later intellectual development (Kochanek, Kabakoff & Lipsitt, 1990). In this study, parental level of education was not significantly related to responsiveness and directiveness. The reason may be, however, that the participating parents' level of education did not vary sufficiently to produce statistical significance.

If responsiveness is a significant contributor to children's intellectual development, then parents of intellectually delayed children should be encouraged to be a great deal more responsive toward their children. Parents of delayed children may also have to be moderately directive in order to teach and guide their children. However, excessive directiveness would be controlling, intrusive and dysfunctional. One solution for the parents may be to adopt the responsive-directive approach as defined in this study. Thus, a parent might apply this approach by acknowledging the child's message or activity before giving an instruction or suggestion. The immediate result would be to make the child feel more respected and accepted, which would give the child a better self-concept. The long-term result might be an increased rate of intellectual development. However, no

empirical research appears to exist regarding that hypothesis.

CHILD BEHAVIORS

The past literature has consistently found that intellectually delayed children are less contingently responsive than non-delayed children. The opposite was found in this study. The delayed children were significantly more responsive than their non-delayed siblings and they were more responsive to their mothers than to their fathers. Cunningham et al. (1981), as an exception in the literature, found the delayed children to be as compliant as the non-delayed children. Considering that mothers in the present study were most directive toward the delayed children, it would follow, as it was found, that the delayed child also would be most responsive to their mothers.

The last hypothesis predicted that the delayed children would be less directive than the non-delayed children. The children's directiveness is of interest because the literature has shown that delayed children initiate behaviors less often than non-delayed children. The obtained data showed that the two groups of children did not differ significantly in directiveness. Viewing directiveness as behavioral initiation, the data did not support the hypothesis that delayed children initiate behaviors less

often than non-delayed children, even when the Directive and Non-Directive Initiation categories were combined. However, the difference may be one of context such that the delayed children will initiate behaviors less often in one situation than in another.

The post-hoc analysis concerning the children's behavior patterns provided information that may help to explain the discrepancy between the present and the previous results. This analysis indicated that the non-delayed children were less responsive than the delayed children. Also, the younger non-delayed children were on average more directive than the younger delayed children. There is some indication, then, that the elder non-delayed children, regardless of gender, generally were less interactive than the elder delayed children in relation to their parents. By being less interactive (that is, more passive and patient) they may have facilitated the greater interactiveness of the delayed children.

However, a qualitative post-hoc analysis designed to test this facilitation hypothesis, did not support that hypothesis. Only one of the two elder non-delayed children in this analysis conformed to the predicted pattern. This was a girl. Girls have been reported to be most likely to be involved in the caretaking of the delayed sibling (Stoneman et al., 1987). The second elder non-delayed child,

a boy, was demanding and competitive in relation to the delayed sibling.

Further, according to the predicted pattern, the elder delayed children should be more assertive than the elder non-delayed children. This pattern was not confirmed in one case and only partially confirmed in the other case. The first case, a girl, was compliant, easily intimidated and typically in a jolly mood. She may have chosen this behavior as a way of competing for her parents' attention against her very assertive and directive younger normal sister. In the second case, the child was responsive but also directive in the sense of being somewhat demanding and negative toward the his father. This behavior was facilitated by the father's directiveness and structures but also responsive behavior.

This qualitative analysis provided support for the family systems theory. This theory predicts that the behavior of one person in the system may depend on any other person or persons in the system. While the analysis provided some support for the facilitation hypothesis, the behavior of the delayed children was facilitated as often by the father's directiveness, the mother's overprotectiveness or the sibling's assertiveness as it was facilitated by the elder non-delayed sibling's passive and patient behavior.

A consistent frame of reference for the children's behavior seemed to be the strategy they had selected to

compete for their parents' attention, recognition and expression of love (Ross & Milgram, 1982). Very responsive and moderately directive parents should be easiest for the children to feel attended to and cared about. These children should then be less assertive and competitive. Family 4 was one such family. In contrast, the parents of Family 10 who were very directive and low-to-moderate in responsiveness had children who both displayed assertiveness and competitiveness.

CONCLUSIONS

The most noteable finding of this study was that intellectually delayed children were neither passive and relatively non-interactive as in the past studies. The past literature has fairly consistently found delayed children to be initiating activities less frequently and responding less frequently to their parents than non-delayed children. In the present study, the delayed children were found to be as directive (i.e., as initiating) as, and more responsive than the non-delayed children. A post-hoc attempt was made to explore that finding in terms of the presence of the elder non-delayed sibling's more passive and patient behavior. That explanation was not supported. A family systems explanation, mediated by the children's competition for the parents' attention, was more plausible. However, the small

number of children involved in the post-hoc analyses rendered this explanation very tentative.

Another explanation for the delayed children's relatively high responsiveness could be considered. Some studies (Brooks-Gunn & Lewis, 1982; Terdal et al., 1976) have suggested that child responsiveness may rise with mental and chronological ages. In the present study the delayed and the non-delayed children were of equivalent mean chronological age; the mean MA of the delayed children was therefore lower than that of their non-delayed siblings. One would therefore have expected the delayed children to be inferior to the non-delayed in responsiveness. However, the opposite was found in this study. The discrepancy between the present and the past studies can therefore be explained neither by chronological nor by MA.

As a third reason for the difference between the interactional level of delayed children in this and previous studies, Brody and Stoneman (1986) suggested that the non-delayed siblings are similar but not necessarily equivalent to age peers who are from different families. The reason, they suggested, is that siblings from families with a delayed child share strong feelings and attachments that are different from those between children of different families.

Another noteworthy conclusion is that parents, especially mothers, are significantly more directive toward

their delayed than toward their non-delayed children. The same finding has been made consistently in past literature under various conditions. That the same conclusion has been reached also in this study is remarkable because the study differed from previous studies in two important ways. First, the presence of four family members could have produced a very different result relative to the traditional mother-child designs or the more rare mother-father-child studies. Second, the definition of directiveness was broader in this study than in the previous studies. Rather than the traditional fairly narrow definition in terms of instruction and commands, directiveness in this study was defined more broadly in family systems terms as behavior intended to change another person's behavior. Any direct attempt to change another person's behavior could be viewed as crossing the personal boundary of that person depending on the context.

A fairly serious methodological difficulty in past studies related to the participation of parents without intellectually delayed children was remedied in the present study. The inclusion of the nearest-in-age sibling of the delayed child offered more certainty that differences in parent behavior would be due to the child diagnoses. In the past studies the differences in parental behavior could also have been due to other variables. It is certainly likely

that parents with and without delayed children because of their different parenting experiences are of two different parent populations. This could be tested empirically by comparing the interactions between non-delayed children and their parents in families with and without a delayed child.

The past literature, as well as indirect information from the present study, have indicated that responsiveness and moderate directiveness may play important roles in the intellectual development of children. Suggestions for altering parenting practices on the bases of this research have involved teaching parents to be less directive (Mahoney et al., 1985). Such an approach may not be appropriate because the children most likely need a high degree of responsiveness while still needing a moderate degree of directiveness at least in terms of guidance. The level of directiveness of the parents participating in the present study was significantly higher than their level of responsiveness. No standard currently exists for an appropriate level of directiveness. However, the parents in this study may not have been too directive but they were very likely not sufficiently responsive. The applied conclusion from the present work would therefore be that parents should be taught to be more contingently responsive than they generally are.

LIMITATIONS

Caution must be exercised in the interpretating the results of this study. Relationships between parents and children are extremely complex. One study can only generate data that are valid within certain conditions and replication is always needed.

The participating families were not chosen randomly for the defined population. Although a relatively high participation rate was reached, the results may not be readily generalizable to the population from which the sample was selected.

The greater variability in the age of the non-delayed children relative to that of the delayed children may challenge the assumption that the delayed and the non-delayed children were equal in age. Although their mean ages did not differ significantly, the greater variability of the non-delayed sibling group may have had a unique effect on the dependent variables.

The presence of the video camera may have had some effect on the behavior of the family members. However, Lytton (1972) made two points in relation to this problem: 1. Young children seem unconcerned with the presence of the camera and therefore tend to stimulate more natural behaviors in the parents. 2. Investigators have to accept that the behaviors

studied are "behaviors-in-the- presence-of-observer" (p. 9), in the present case the presence of the video camera.

While the delayed children in this study, contrary to past studies, were found to be more interactive than their non-delayed siblings, their interactive behavior was only measured in the broad categories of contingent responsiveness and directiveness. The content of the delayed children's speech and behavior was not taken into account. Thus, it is possible, as indicated by Jones (1980), that the quality of their interactive behavior might be lower than the interactive behavior of their non-delayed siblings.

Home observations and laboratory observations may produce somewhat different results as may the difference between naturally occurring and more structured observations. Each situation has its advantages and disadvantages and the choice must depend to some extent on the objective of a particular study. The purpose of the present study was to examine how parents and their children differ in their interaction with regard to specific constructs and not to obtain an image of how parents generally and naturally behave. A laboratory setting was selected and a structured task was chosen in order to ensure a relatively high frequency of the behaviors under study. The structured task involved was, however, assumed to be an adequate simulation of a type of structured group activity that may occur at home

such as meal time and bed time. Nevertheless, generalization from the present study to naturally occurring behaviors at home cannot be made directly.

Some of the variables of this study that require additional examination are the research task and the research context. Thus, it is possible that a differently structured task or a free-play situation would produce different results. It is also possible that the same study based on observations in the family's own home would produce different results.

SUMMARY OF SUGGESTIONS FOR FURTHER RESEARCH

1. Replication of the present study using a different structured task. This may involve playing a competitive game or it may involve a sequence of different activities.
2. Replication of the present study in a free-play situation.
3. Replication of this study in the natural home setting.
4. Replication of the present study with the inclusion of a control group of non-delayed children from families without an intellectually delayed child.

5. Longitudinal research involving the effect of parental directiveness and contingent responsiveness on the development of intellectually delayed children.

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APPENDIX I

Eigil Jensen
178 Dore Crescent
Saskatoon, Saskatchewan
S7K 4X7

TELEPHONES: 242-3914 (Home); 933-5371 (Work)

June 14, 1991

Dear

Thank you for giving your permission to the Public School Board to allow me write to you.

I am a doctoral student in educational psychology at the University of Alberta, Edmonton. As part of my degree I am conducting a major research project involving families with young children who have special learning needs. In writing to you at this time, I am inviting you and your family to participate in this research project. As you will see, the demand on your time will be minimal but the benefits to all involved will be invaluable. Not only is participation of families like yours necessary for me to advance to the doctoral level, but your participation will provide you with an opportunity to

- do a fun activity together as a family;
- contribute to psychologists' understanding of how children learn, grow and become competent;
- increase the knowledge by which practitioners help parents help their children

I am enclosing a copy of a consent form which outlines the nature and extent of your participation. I will be asking you to sign that form should you, as I hope, decide to become participants in this study. I will be contacting you by telephone approximately one week after you have received this letter. At that time I will ask for your consent to participate and arrange for a time for us to meet. I will be available almost any time at your convenience. The meeting will take place at my office in the Sturdy Stone Building. When I call, I will be pleased to answer any questions you may have.

Yours Sincerely

Eigil Jensen
Early Childhood Psychologist

APPENDIX II

Eigil Jensen, Ph.D. Candidate
University of Alberta, Edmonton, Alberta

CONSENT TO PARTICIPATE IN RESEARCH

The purpose of the research in which you are being asked to participate is to learn more about patterns of interaction in families with a child who has special learning needs. By the word "family" is meant father, mother, the special needs child and the nearest-in-age sibling. The obtained information will be of value in the future for helping parents help their children's development.

The identity of your family will only be known to the researcher and all records pertaining to your family will be kept strictly confidential. In order to safeguard your identities, each family member will be coded, for example as 3 (third family), A (special needs child), 1 (father)--in other words 3A1--so that other people directly involved with the research will only know the family members' by their code. The obtained information may be published in professional publications but only statistics and possibly codes will be used. No information by which the family could be identified will be published.

Your consent is limited to the following:

1. Completing a one-page family information form.
2. Participating in a video taped family interaction session of approximately 15 minutes duration. For this session, the family members will be asked to work on a large and simple felt board puzzle of a person. The video tape recording will be viewed only by the researcher and his supervisors.
3. Completing a 62-item questionnaire concerning the roles and behaviors of the family members. You will be asked to complete this form at the time of the video taping session.

You will be free to withdraw your participation from the study at any time without pressures or reprisals of any kind.

We agree, by our signatures below, to participate with our children in this study in accordance with the conditions outlined in the foregoing.

Date _____

Father _____ Mother _____
(Please print) (Please print)

Signature _____ Signature _____

Researcher's signature _____

APPENDIX III

PERSONAL DATA FORM

Date _____

Family

Last Name _____ Address _____

Telephone No. _____ _____

Father's name _____ Mother's name _____

Birth date _____ Birth date _____

Years of Education _____ Years of Education _____

Occupation _____ Occupation _____

General state of health:
- Good
- Often not well _____
- Poor _____

General state of health:
- Good
- Often not well _____
- Poor _____

Yearly gross family income:

Under $20,000 ___; $20-35,000 ___; $35-50,000 ___; over $50,000 ___.

Children in the Family

Name	Birth date	General State of Health

APPENDIX IV

FAMILY DYNAMICS MEASURE**

©

Directions: When you answer the following questions, please recall a family is defined as a group of two or more people who have a commitment to each other and live together. Please read each question and decide whether you strongly agree, agree, agree more than disagree, disagree more than agree, disagree, or strongly disagree. For example, if you strongly agree that in your family, when you feel blue someone comforts you (question 1), you should circle 1 (strongly agree). If you disagree, you should circle 5 (disagree). There are no right or wrong answers. If you are unsure, please make a guess.

Do not write here

In my family:	Strongly Agree	Agree	Agree More Than Disagree	Disagree More Than Agree	Disagree	Strongly Disagree	
1. When I feel blue, someone comforts me.	1	2	3	4	5	6	___(11
2. I agree with the way tasks are divided.	1	2	3	4	5	6	___(12
3. Someone knows how to get ahold of me when I'm not home.	1	2	3	4	5	6	___(13
4. I think the real issues don't get talked about.	1	2	3	4	5	6	___(14
5. I carry more than my share of the tasks to be done.	1	2	3	4	5	6	___(15
6. I am expected to like the same food as everyone else.	1	2	3	4	5	6	___(16
7. I am satisfied with how the work gets done.	1	2	3	4	5	6	___(17
8. Once a decision is made its hard to change.	1	2	3	4	5	6	___(18
9. Some people say one thing and mean another.	1	2	3	4	5	6	___(19
10. I look for new ways to do things.	1	2	3	4	5	6	___(20

In my family:	Strongly Agree	Agree	Agree More Than Disagree	Disagree More Than Agree	Disagree	Strongly Disagree	
11. I solve most problems on my own.	1	2	3	4	5	6	___(21
12. Others offer to help me with my tasks.	1	2	3	4	5	6	___(22
13. I feel a sense of togetherness.	1	2	3	4	5	6	___(23
14. I have things that belong only to me.	1	2	3	4	5	6	___(24)
15. I want people to do things my way.	1	2	3	4	5	6	___(25)
16. Everything falls apart when there's trouble.	1	2	3	4	5	6	___(26)
17. I know how to reach members at any time.	1	2	3	4	5	6	___(27)
18. No one cares about me.	1	2	3	4	5	6	___(28)
19. I let others know what I want.	1	2	3	4	5	6	___(29)
20. I get a fair share of the chores.	1	2	3	4	5	6	___(30)
21. I think talking gets me nowhere.	1	2	3	4	5	6	___(31)
22. I have to remind others to do their chores.	1	2	3	4	5	6	___(32)
23. I can't count on how family money will be spent.	1	2	3	4	5	6	___(33)
24. I think the important things are talked about.	1	2	3	4	5	6	___(34)
25. I stick to my daily routines.	1	2	3	4	5	6	___(35)
26. It's hard to say what I mean.	1	2	3	4	5	6	___(36)

In my family:	Strongly Agree	Agree	Agree More Than Disagree	Disagree More Than Agree	Disagree	Strongly Disagree	
27. I don't get enough help with work at home.	1	2	3	4	5	6	___(37
28. There is someone who cares about me.	1	2	3	4	5	6	___(38
29. I keep feelings to myself.	1	2	3	4	5	6	___(39
30. I think there is always something going wrong.	1	2	3	4	5	6	___(40
31. I get stuck with the bad jobs.	1	2	3	4	5	6	___(41
32. I don't know what to expect from one day to the next.	1	2	3	4	5	6	___(42
33. I let someone else make up my mind.	1	2	3	4	5	6	___(43)
34. I am a "loner."	1	2	3	4	5	6	___(44)
35. I feel a sense of closeness.	1	2	3	4	5	6	___(45)
36. I feel left out.	1	2	3	4	5	6	___(46)
37. When there is a misunderstanding I talk it over until it is clear.	1	2	3	4	5	6	___(47)
38. I know we can make it when things go wrong.	1	2	3	4	5	6	___(48)
39. I feel a sense of warmth.	1	2	3	4	5	6	___(49)
40. I do not feel close to anyone.	1	2	3	4	5	6	___(50)
41. I make decisions for myself.	1	2	3	4	5	6	___(51)
42. I don't like the work I have to do.	1	2	3	4	5	6	___(52)

In my family:	Strongly Agree	Agree	Agree More Than Disagree	Disagree More Than Agree	Disagree	Strongly Disagree	
43. I am allowed to have my own opinions.	1	2	3	4	5	6	___(53
44. When I speak, someone listens to what I say.	1	2	3	4	5	6	___(54
45. I ask when I don't know what others mean.	1	2	3	4	5	6	___(55
46. I don't do things unless someone agrees.	1	2	3	4	5	6	___(56)
47. Talking about my problems confuses things more.	1	2	3	4	5	6	___(57)
48. I avoid talking about problems.	1	2	3	4	5	6	___(58)
49. It's hard to change the rules.	1	2	3	4	5	6	___(59)
50. I stand up for myself.	1	2	3	4	5	6	___(60)
51. I think we are all alike.	1	2	3	4	5	6	___(61)
52. I know what to expect from one day to another.	1	2	3	4	5	6	___(62)
53. I know what to expect from other members.	1	2	3	4	5	6	___(63)
54. I seldom change my daily routines.	1	2	3	4	5	6	___(64)
55. The correct way to do things is important.	1	2	3	4	5	6	___(65)
56. It's important to hold the same beliefs.	1	2	3	4	5	6	___(66)
57. I have a place to call my own.	1	2	3	4	5	6	___(67)
58. Each of us can do the same job in different ways.	1	2	3	4	5	6	___(68)

In my family:	Strongly Agree	Agree	Agree More Than Disagree	Disagree More Than Agree	Disagree	Strongly Disagree	
59. It's okay to bring friends home.	1	2	3	4	5	6	___(69)
60. The rules are not bent for me.	1	2	3	4	5	6	___(70)
61. I think things out by myself.	1	2	3	4	5	6	___(71)
62. Activities can be changed.	1	2	3	4	5	6	___(72)

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Revised 8/82

APPENDIX V

THE J. HILLIS MILLER HEALTH CENTER
UNIVERSITY OF FLORIDA
GAINESVILLE, 32610

COLLEGE OF NURSING
P.O. BOX J-187

AREA CODE 904 392-3511
392-3524
392-3531

November 2, 1990

Eigil Jensen
178 Dore Crescent
Saskatoon
Saskatchewan
CANADA S7K 4X7

Dear Mr. Jensen:

I hereby grant permission for you and Dr. Haack to use and publish study results using the enclosed Family Dynamics Measure c (FDM) authored by members of the Family Research Group of the Midwest Nursing Research Society. As you know, this instrument continues to be tested for item and scale reliability. In giving permission for you to use it we ask that you provide an abstract of the results of your study and specifically, mean scores of the six bipolar dimensions and Cronbach alpha coefficients for internal consistency.

Note on the scoring guide that certain FDM items are reverse scored. The guide is at the bottom. The lower the score, the more positive the family dynamics.

Please contact me for questions. Good luck with your study.

Sincerely,

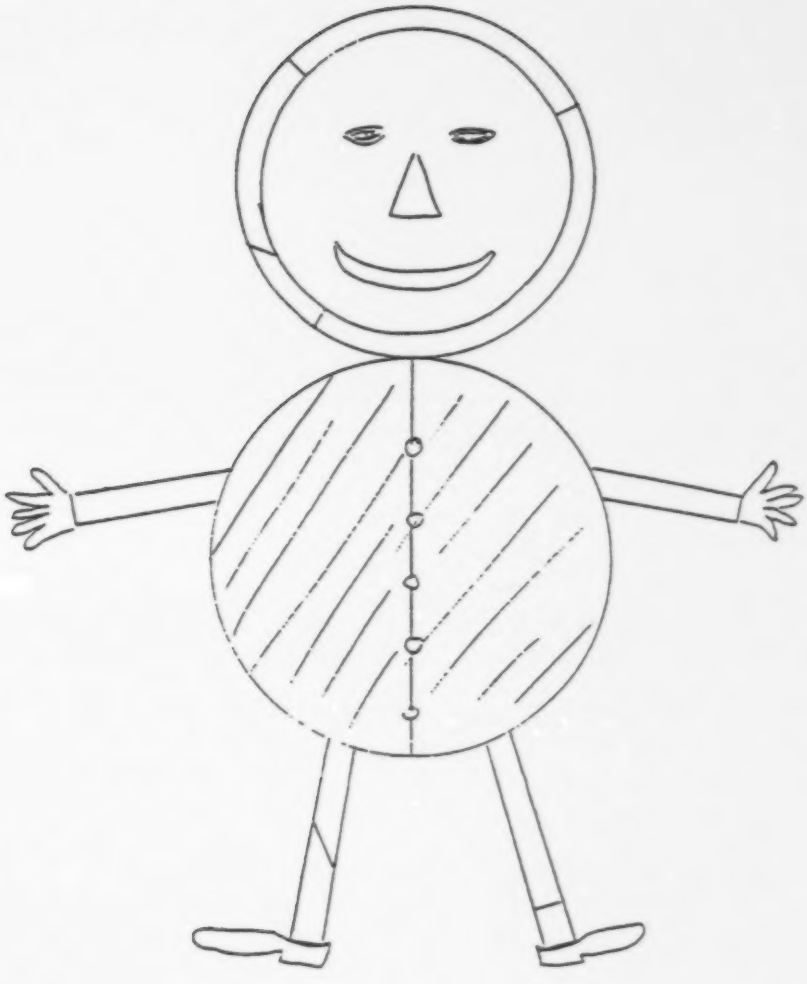
Marjorie White

Marjorie A. White, RN, PhD, FAAN
Professor
University of Florida
Coordinator, Family Research Group
Midwest Nursing Society

/jml
encs.

EQUAL EMPLOYMENT OPPORTUNITY/AFFIRMATIVE ACTION EMPLOYER

APPENDIX VI



APPENDIX VII

C O D I N G M A N U A L

Eigil Jensen

The behaviors of family members are analyzed in terms of the following five mutually exclusive and all inclusive categories: Responsive, Directive, Responsive-Directive, Non-Directive Initiation and No Behavior. Each of these are operationally defined in accordance with the characteristics shown in Table 1.

Table 1
Characteristics of Five Behavior Categories

BEHAVIOR CATEGORIES	BEHAVIOR CATEGORY CHARACTERISTICS			
	Con-tingent	On same Topic or Activity	Topic or Activity Switch	Intended to Elicit Behavior
Responsive	X	X		
Directive			X	X
Responsive-Directive	X	X	X	X
Non-Directive Initiation			X	
No Behavior				

General Principles

In order to code behaviors reliably, the behaviors will be defined as behavioral units. A behavioral unit was referred to by Mahoney et al. (1990) as a communicative turn. A behavioral unit is defined as any meaningful or purposeful verbal of non-verbal behavior which may or may not be a part of a longer communicative turn. This definition allows the coder to code a behavior which was begun in the foregoing coding segment but which has extended into the present segment if a part of that behavioral unit can be seen as meaningful in itself. This is of particular importance when coding the antecedents. For example, an antecedent may be a contingent response to a behavioral unit that occurred in the previous segment.

A coding problem rarely discussed in the behavior coding literature is that people usually emit both verbal and non-verbal behaviors simultaneously. Occasionally the verbal

behavior is incongruous with the non-verbal behavior. For example, a person may be speaking to person A while looking at person B. If that occurs, only the verbal behavior is coded.

Antecedent

The antecedent is defined as the first scoreable behavior that occurs after the start of each coding segment. It is classified as one of the five behavioral catgories without regard to which person it may be a response to and to which person it may be directed. If the antecedent was begun in the previous segment, the person's next scorable behavior becomes the antecedent, unless the part of the behavior occurring in the current segment can be seen as an independent unit.

If an antecedent is followed by a second behavior by the same person but of a different behavioral category without sufficient time elapsing between the two behaviors for a response by the dyadic partner to occur, then the last occurring behavior rather than the first should be taken as the antecedent.

A person being coded as the antecedent may do nothing until shortly before the end of the coding segment. If the antecedent thus occurs so late in the segment as to leave no time for a consequent, the antecedent is coded as No Behavior.

Consequent

The consequent is the behavior of the dyadic partner that follows and is conceptually and temporally related to the antecedent. To be contingent upon the antecedent, the consequent must usually start after the antecedent is completed. However, occasionally the consequent may start after the onset of the antecedent. This may occur for example after a sustained actions such as a cry.

It a consequent is not completed during the current coding segment, then it is ignored unless the part of the consequent that is occurring during the current coding segment can be considered a complete behavioral unit.

Responsiveness

Responsiveness is defined as contingently responsive behaviors that a) are on the same topic, b) involves the same activity or c) which share the same focus as the antecedent. This category is designed to capture the harmoneous flow of interactions between people. An example would be a playing child whose mother acknowledges the child's behavior or praises the child.

Responsive behaviors include positive commenting on the

child's activities, various forms of verbal and non-verbal reinforcement, asking questions (when a shift in focus or topic is not intended, e.g., "You mean this one?"), answering questions, clarification (e.g., "You mean this one!"), answering questions, helping in response to a request, imitating the other person's activity or verbalizations contingently (so long as these are not directive), and observing the other person's behavior when the observing is fairly intense and is contingent upon the other person's behavior (contingent visual attending). Ongoing observing behavior (i.e., behavior that was begun in a foregoing coding segment) is coded as No Behavior.

Directiveness

Directiveness is defined as behaviors that a) are a switch in topic, activity or focus away from the topic, activity or focus of the antecedent, and that b) are intended to elicit a consequent response. In simple terms, directive behavior is intended in some way to change the behavior of another person. Directiveness is related to Tannock's (1988) topic switch-initiate-oblige category and is designed to capture a sense of control, conflict, disharmony and intrusion. Contingently negative behaviors are virtually always classifiable as directive because they usually imply an intention to elicit a change in the consequent behavior.

Included in the Directive category are behaviors such as commands, instructions (when a switch in topis or focus is intended), criticisms, corrections, verbal and non-verbal protest, showing an object, and giving directive information and suggestions (such as, "This piece would fit over here!"). Asking permission is Directive because it requires a change in the dyadic partner's behavior. An antecedent command being imitated by the dyadic partner is also coded as Directive. Showing an object and giving information is often Dirctive but could also be Non-Directive initiation if there is no apparent intent to influence the other person's behavior. One person lifting or carrying another person to or away from somewhere while the person being carried of lifted protests is included as Directive.

Responsive-Directive

This category is defined as behaviors that literally consist of two parts, the first part being Responsive and the second part Directive. For example, in response to a request by a child for a cookie, a parent may say, "Yes, you can have a cookie, but pick up your toys first". This category is similar to Mahoney et al.'s (1990) response-mand category. It was included because it contains the two categories of

responsiveness and directiveness which in combination may be a better predictor of developmental outcome than either of the two categories alone.

Non-Directive Initiation

Non-Directive initiation is defined as interactive or non-interactive behaviors that are a) a switch in topic, activity or focus, but which are b) not intended to elicit a consequent response. It is related to Tannock's (1988) topic switch-initiate-comment category. The behaviors in this category are chosed to depict an innocuous, self-initiated, harmonious atmosphere in which people interact if they choose but are not required to by the situation.

This category includes non-contingent praise, self-direction (e.g., mother says to herself, "Let's try that one" and carries out the action herself), and other purposeful behaviors. Therapeutic social modelling frequently consists of behaviors of this category. In cases of disagreement over whether behaviors are purposeful and thus belong to this category or non-purposeful and belongs to the No Behavior category, the behaviors are coded in this category. Showing an object or giving information is coded in this category only if there is no apparent intent to influence or change the other person's behavior.

No Behavior

This category is intended for occasions where the person whose behavior is being coded does not display any observable and purposeful behaviors that are begun during the current rating interval. Any ongoing behaviors (behaviors that are begun in a previous coding segment) are coded as No Behavior. In this sense, the category also refers to no NEW behaviors.

Mahoney, G., Fors, S., & Wood, S. (1990). Maternal directive behavior revisited. American Journal on Mental Retardation, 94(4), 398-406.

Tannock, R. (1988b). Mothers' directiveness in their interactions with their children with and without Down syndrome. American Journal of Mental Retardation, 93(2), 154-165.

APPENDIX VIII

FAMILY _____	ANTECEDENT _____	CONSEQUENT _____
0 _____	101 _____	201 _____
6 _____	106 _____	206 _____
11 _____	111 _____	211 _____
16 _____	116 _____	216 _____
21 _____	121 _____	221 _____
26 _____	126 _____	226 _____
31 _____	131 _____	231 _____
36 _____	136 _____	236 _____
41 _____	141 _____	241 _____
46 _____	146 _____	246 _____
51 _____	151 _____	
56 _____	156 _____	
61 _____	161 _____	
66 _____	166 _____	
71 _____	171 _____	
76 _____	176 _____	
81 _____	181 _____	
86 _____	186 _____	
91 _____	191 _____	
96 _____	196 _____	

NAME: Antecedent: _____ Consequent: _____

CONSEQUENT

ANTECEDENT	Responsive	Directive	Resp.-Direct.	Non-Dir. Init.	No Behavior	Sum
Responsive						
Directive						
Resp.-Direct.						
Non-Dir. Init.						
No Behavior						
Sum						

APPENDIX IX

THE MOST RESPONSIVE PARENT

The parent with the highest number of consequents in responsiveness was a 43 year old mother (M), the second-oldest maternal participant in the study. She had 12 years of education and the family income was in the highest category, namely greater than $50,000 per year. Her high responsiveness was in response to the antecedents of her delayed son (A). He was 6.2 years old. The non-delayed child was an 11.6-year old girl. Her responsiveness toward the non-delayed daughter was the second highest obtained. The father was also 43 years old and had ten years of education. His responsiveness to both children was slightly above average for the fathers. In spite of being the most responsive mother, according to the data, she only obtained a frequency of 16 responsiveness tallies with the delayed boy as antecedent and 12 tallies with the non-delayed girl as antecedent.

The following are examples of the antecedents and consequents transcribed from the video tape recording:

A (delayed boy as antecedent): Places a piece of the puzzle in the middle of the felt board.

M (mother as the consequent): "Very Good"

A: Picks up an eye that his father had placed and puts it on the man's stomach.

M: Laughs in response along with the father and daughter.

A: In the response to the mother's foregoing request, "Can you find one like this", the child says, "Yeah, yeah, yeah" (excitedly).

M: "Okay".

A: Places a piece during his turn.

M: "Oh, very good, yeah".

A: "This one is backwaard" (word is mispronounced). He pbs up a piece and places it on top of the man's head. M:Looks intensely at what the child is doing, laughs and says, "That is backwaard".

A: Places piece in response to request.

M: "That a good boy".

A: "Backwaard".

M: "Backwaard, dad".

A: Places piece and makes some unintelligible comments.

M: "Oh, that's good".

A: "He man".

M "He man, is that what you are making?"

A: "What's that?"

M: "That's his hair"

THE MOST DIRECTIVE MOTHER

The parent with the highest number of directive consequents was also a mother. She was 39 years old and had 14 years of education. She was one of the two parents who did not wish to complete the FDM. The family income was in the second highest yearly income category of $35,000-50,000. Her directiveness was in response to her delayed son who was 4.9 years of age. The non-delayed sibling was a boy of 10.2 years of age. The father was 38 years old and had 14 years of education.

A: "Me". This antecedent was in response to a question by his mother, "Who's gonna go first?"

M: "We're gonna play a game, okay".

A: "Okay".

M: "How shall we start"

A: Responds to an instruction.

M: "What's that look like".

A: Responds to a request.

M: "Put it maybe over there".

A: Child answers "Me" in response to "Whose turn".

M: "No".

THE MOST DIRECTIVE CHILD

The most directive child was a non-delayed boy, 2.0 years of age. His directiveness was in consequence to his father's antecedents. His father was thirty years old with 13 years of education. His scores on the FDM were within ±1 standard deviation of the mean. The primary reason for his high directiveness was several ±1 SD on both the positive and negative dimensions. The family income was in the second lowest category of $20,000-40,000 per year. The boy's directiveness was primarily due to several temper tantrums. These were brought on partly because of his desire to have a drink, partly because of his disinterest in the task, and partly because the parents were unable to soothe and comfort him. At one point he had settled down but the father mentioned "drink" again and this set the boy off on another tantrum. The following examples of directivenss were consequents other than those recorded during his temper tantrums.

F (father as antecedent): "Are you going to come and help ~~(name)~~?".

B (non-delayed child as consequent): Crying.

F: "Your turn, (name)".

B: Verbalizes a request (the nature of the request was not intelligible).

F: "Here, (name), don't wreck the puzzle".

B: Pushes on his father and indicates that he wants to be picked up.

F: "Listen to mom".

B: "Nooh".

F: Question directed at the mother: "Did you bring a bottle?".

B: "Want some milk?".

APPENDIX X

DEGREES OF FREEDOM (DF), SUMS OF SQUARES (SS), MEAN SQUARES (MS) AND F-RATIOS (F) FOR EIGHT TWO-WAY ANALYSES OF VARIANCE WITH REPEATED MEASURES ON ONE FACTOR (THE CONSEQUENT FACTOR)

Responsiveness -

Parents' Consequents (A) and Children's Antecedents (B)

SOURCE	DF	SS	MS	F	
BETWEEN-SUBJECTS	31	514.94	---		
VARIABLE A	1	20.25	20.25	1.228	0.2762
ERROR:BETWEEN-SUBJ.	30	494.69	16.49		
WITHIN-SUBJECTS	32	166.00	---		
VARIABLE B	1	3.06	3.06	0.572	0.5382
VARIABLES A x B	1	2.25	2.25	0.420	0.5286
ERROR:WITHIN-SUBJ.	30	160.69	5.36		
TOTAL	63	680.94			

Directiveness -

Parents' Consequents (A) and Children's Antecedents (B)

SOURCE	DF	SS	MS	F	
BETWEEN-SUBJECTS	31	1286.73	---		
VARIABLE A	1	199.52	199.52	5.505	0.0243
ERROR:BETWEEN-SUBJ.	30	1087.22	36.24		
WITHIN-SUBJECTS	32	1164.50	---		
VARIABLE B	1	293.27	293.27	10.195	0.0036
VARIABLES A x B	1	8.27	8.27	0.287	0.6020
ERROR:WITHIN-SUBJ.	30	862.97	28.77		
TOTAL	63	2451.23			

Non-Directive Initiation -

Parents' Consequents (A) and Children's Antecedents (B)

SOURCE	DF	SS	MS	F	
BETWEEN-SUBJECTS	31	57.75	---		
VARIABLE A	1	1.00	1.00	0.529	0.5206
ERROR:BETWEEN-SUBJ.	30	56.75	1.89		
WITHIN-SUBJECTS	32	44.00	---		
VARIABLE B	1	2.25	2.25	1.656	0.2055
VARIABLES A x B	1	1.00	1.00	0.736	0.5979
ERROR:WITHIN-SUBJ.	30	40.75	1.36		
TOTAL	63	101.75			

No Behavior -

Parents' Consequents (A) and Children's Antecedents (B)

SOURCE	DF	SS	MS	F	
BETWEEN-SUBJECTS	31	1960.44	---		
VARIABLE A	1	361.00	361.00	6.771	0.0136
ERROR:BETWEEN-SUBJ.	30	1599.44	53.31		
WITHIN-SUBJECTS	32	1710.00	---		
VARIABLE B	1	289.00	289.00	6.134	0.0181
VARIABLES A x B	1	7.56	7.56	0.161	0.6937
ERROR:WITHIN-SUBJ.	30	1413.44	47.11		
TOTAL	63	3670.44			

Responsiveness -

Children's Consequents (A) and Parents' Antecedents (B)

SOURCE	DF	SS	MS	F	
BETWEEN-SUBJECTS	31	1314.73	---		
VARIABLE A	1	293.27	293.27	8.613	0.0064
ERROR:BETWEEN-SUBJ.	30	1021.47	34.05		
WITHIN-SUBJECTS	32	919.50	---		
VARIABLE B	1	34.52	34.52	1.252	0.2714
VARIABLES A x B	1	58.14	58.14	2.109	0.1534
ERROR:WITHIN-SUBJ.	30	826.84	27.56		
TOTAL	63	2234.23			

Directiveness -

Children's Consequents (A) and Parents' Antecedents (B)

SOURCE	DF	SS	MS	F	
BETWEEN-SUBJECTS	31	388.73	---		
VARIABLE A	1	34.52	34.52	2.923	0.0941
ERROR:BETWEEN-SUBJ.	30	354.22	11.81		
WITHIN-SUBJECTS	32	235.50	---		
VARIABLE B	1	15.02	15.02	2.123	0.1522
VARIABLES A x B	1	8.27	8.27	1.168	0.2883
ERROR:WITHIN-SUBJ.	30	212.22	7.07		
TOTAL	63	624.23			

Non-Directive Initiation -

Children's Consequents (A) and Parents' Antecedents (B)

SOURCE	DF	SS	MS	F	
BETWEEN-SUBJECTS	31	288.23	---		
VARIABLE A	1	3.52	3.52	0.370	0.5541
ERROR:BETWEEN-SUBJ.	30	284.72	9.49		
WITHIN-SUBJECTS	32	185.50	---		
VARIABLE B	1	31.64	31.64	6.221	0.0174
VARIABLES A x B	1	1.27	1.27	0.249	0.6270
ERROR:WITHIN-SUBJ.	30	152.59	5.09		
TOTAL	63	473.73			

No Behavior -

Children's Consequents (A) and Parents' Antecedents (B)

SOURCE	DF	SS	MS	F	
BETWEEN-SUBJECTS	31	1583.00	---		
VARIABLE A	1	76.56	76.56	1.525	0.2245
ERROR:BETWEEN-SUBJ.	30	1506.44	50.21		
WITHIN-SUBJECTS	32	1850.00	---		
VARIABLE B	1	189.06	189.06	3.769	0.0586
VARIABLES A x B	1	156.25	156.25	3.115	0.0843
ERROR:WITHIN-SUBJ.	30	1504.69	50.16		
TOTAL	63	3433.00			

Summary of Spearman Rank-Difference Correlation Cofficients

	Dir. 1	Dir. 2	FDM, partial	FDM, full	Resp. 1 & 2	Resp. 2	Resp. A	Resp. 1A	Resp. 1B	Resp. 2A	Resp. 2B	CA
Fam. Income	.40				.50*							
Educ. 1	.45*				.09							
Educ. 2	.47*				.27							
Dir.			-.27									
Dir. 1		.40										
Dir. 2				.01			.58*					
Dir. A												.07
Dir. B												.18
Dir. A1								.45*				
Dir. B1									.61**			
Dir. A2										.57*		
Dir. B2											.67**	
FDM, partial					-.38							
Resp. 1						.32						
Resp. B												.20
CA A							.11					

*p<.05; **p<.01.

Educ.=Education
Dir.=Directiveness
FDM=Family Dynamics Measure
Resp.=Responsiveness
CA=Chronological Age
1=Father
2=Mother

A=Delayed Child
B=Non-delayed child
Where a number and a letter are combined, the first symbol stands for the antecedent and the second symbol stands for the concequent.